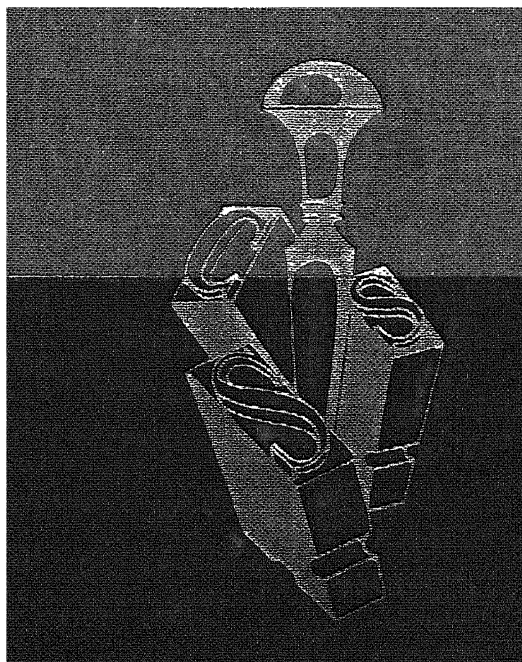


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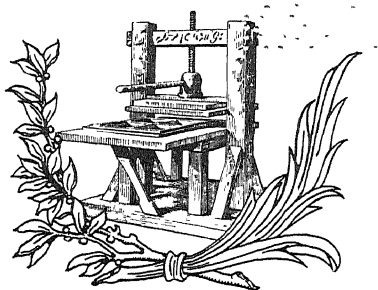
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THE ORIGINS OF
PRINTING AND ENGRAVING



ITALIAN SCHOOL 15TH CENTURY
Profile of a woman of Urbino
(Berlin Print Room)



THE ORIGINS OF PRINTING AND ENGRAVING

by

ANDRÉ BLUM

Translated from the French

by

HARRY MILLER LYDENBERG

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PART

1

THE ORIGINS
OF
PRINTING

1

Controversies About The Invention

FOR almost five hundred years the learned world has been discussing the history of a discovery that has transformed civilization. Passing over its distant origins, which some wish to trace back to classical antiquity or to a more recent period in the history of the East, we find that not until the middle of the fifteenth century are we able in Europe to locate printed documents or contemporary evidence of the origin of printing.

Germany, the Low Countries, France, all have supporters for the honor of the invention. But what we know at present seems to indicate that Gutenberg may still be looked on as the inventor of the new technique. The theory of its discovery in the Netherlands, supported by Paeile (1), Hessels (2), Hubbens (3), Zeller (4), Campbell (5) credits the discovery to Lourens Coster of Haarlem. It rests on this dubious passage in a work of the middle of the sixteenth century called *Batavia* (6):

“Habitauit ante annos centum duodetrigenta Harlemi in ædibus satis splendidis (vt documento esse potest fabrica quæ in hunc vsque diem perstat integra) foro imminentibus è regione Palatiji Regalis, Lavrentivs Ioannes cognomento Ædituus Custósve, (quod tunc opimum & honorificum munus familia eo nomine clara hæreditario iure possidebat) is ipse qui nunc laudem inuentæ artis Typographicæ recidiuá iustis vindicijs ac sacramentis repetit, ab alijs nefariè possessam & occupatam, summo iure omnium triumphorum laurea maiore donandus. Is fortè in suburbano nemore spatiaturs (vt solent sumpto cibo aut festis diebus

ciues qui otio abundât) cœpit faginos cortices principio in literarum typos conformare, quibus inuersa ratione sigillatim chartæ impressis versiculum vnum atque alterum animi gratiâ ducebat, nepotibus generi sui liberis exemplum futurum. Quod vbi feliciter successerat, cœpit animo altiora (vt erat ingenio magno & subacto) agitare, primumquē omnium atramenti scriptorij genus glutinosius tenaciusquē, quod vulgare lituras trahere experiretur, cum genero suo Thoma Petro, qui quaternos liberos reliquit omnes ferme consulari dignitate functos (quod eò dico vt artem in familia honesta & ingenua, haud seruili, natam intelligant omnes) excogitauit, inde etiam pinaces totas figuratas additis characteribus expressit, quo in genere vidi ab ipso excusa Aduersaria, operarum rudimentum paginis solūm aduersis, haud opistographis: is liber erat vernaculo sermone ab auctore conscriptus anonymo, titulū præferens, Speculum nostræ salutis, in quibus id obseruatum fuerat inter prima artis incunabula (vt nunquam vlla simul & reperta & absoluta est) vti paginæ auersæ glutine commissæ cohærescerent, ne illæ ipsæ vacuæ deformitatem adferrent. Postea faginas formas plumbeis mutauit, has deinceps stanneas fecit, quò solidior minusquē flexilis esset materia, durabiliorquē: è quorum typorum reliquijs quæ superfuerant conflata œnophora vetustiora adhuc hodie visuntur in Laurentianis illis, quas dixi, ædibus in forum prospectantibus, habitantis postea à suo pronepote Gerardo Thoma, quem honoris causa nomino, ciue claro, ante paucos annos vita defuncto sene."

(One hundred and twenty-eight years ago there lived in Haarlem in a rather handsome house (as witness the building itself, which has come down to this day in perfect condition) near the market and close to the royal palace, Lourens John, called Sexton or Guard. (This rich and honorable office belonged to the family of that name by hereditary right.) To this man justly belongs the glory of having invented the art of printing, a glory now wickedly held and retained by others. He ought to have by right the laurels that crown all triumphs.

He was walking one day in a wood near the city (as was the custom of the citizens after dinner or when they have leisure on holidays). He began to cut pieces of beech bark in shape of letters; these he reversed, and then with them one by one he printed several little verses on paper; the kindness of his nature led him to give them to his grandchildren as a keepsake. When he had succeeded so happily with this he began to think of greater achievements (for he was a great and active spirit).

And first of all he devised a stickier and thicker ink than the ordinary writing ink, this with the aid of his son-in-law, Thomas Peter, who left four children, almost all of whom achieved the dignity of burgomaster's rank (something I say so that everybody may know that the art was born in a reputable and noble family, not low class).

Then he made pictures, all engraved with letters added. I have seen an example of this early work, a crude affair printed on one side of the leaf only, not on both sides. This book, written in the vernacular by an anonymous author, was called *Speculum nostræ salutis*. This first specimen of the art (for what is newly invented is never perfect) showed this characteristic, that its pages were fastened together so that the blank pages might not make a bad impression. Afterwards he substituted lead types for the beech, and later tin for lead, because tin is harder and more workable and more durable. From the remnants of these types, melted down, old wine casks were made, which may be seen to this day in Lourens' house, overlooking the market place, which I mentioned before. Afterwards it was occupied by his great-grandson, Gerardus Thomas, a distinguished citizen, whom I name to honor, and who died only a few years ago at a great age.)

This story has not been accepted without objections by the critics, although the Coster supporters do point to a Dutch edition of the *Speculum* printed from movable type. But the theory of the priority of the Netherlands falls down because that *Speculum*

appeared after the first printing began in Mainz. We must add too that every one does not agree that this book was printed from movable type, and the impression seems to have been made by hand with a roller, not on a press.

What was said about Coster applies perhaps also to a certain Jan de Printeur of Antwerp, who is mentioned several times in authentic acts registered as of 1417 by the aldermen of Antwerp (7). One must remember that the word *printeur* does not necessarily mean in those documents a worker with movable metal types, but refers rather to a wood engraver. That is certainly so with a Joannes Brito (8), mentioned as a printer in a register of a Bruges fraternity in 1454, when he was really an engraver of pictures. There is no proof that he had done any printing at that date. The abbot of Saint Aubert at Cambrai, in 1445, speaking of the *Doctrinale* (the thirteenth century grammar of Alexander Gallus de Villa Dei) as "cast in a mold" (9), has led certain critics to believe that the words suggest work done with punches and a matrix, that is to say, molded or cut in intaglio, while as a matter of fact the word *molle* (mold) applies to every form in relief that can be used to print from.

The supporters of the Netherlands as the place of invention of printing reject objections of that sort, and set against them the testimony of the *Cronica van der hilliger Stadt von Coellen*, printed at Cologne in 1499. The anonymous chronicler says he got his information from Ulrich Zell: "Dat begynne ind vortganck der vurss kunst hait myr mütlich vertzelt d'Eirsame man Meyster Vlrich tzell vā Hanauwe, boichdrucker zo Coellē noch zerziit anno .MCCCCxcix. durch den die kunst vurss is zo Coellē komē." (The beginning and progress of the said art were given me in 1499 by word of mouth by the honorable man, Master Ulrich Zell of Hanover, printer at Cologne, by whom the said art was introduced into Cologne.) (10)

"Itē dese hoichwyrdige kūst vurss is vonden aller eyrst in

Duytschlant tzo Mentz am Rijne. Ind dat is d' duytschscher nacion eyn groisse eirlicheit dat sulche synrijche mynschen syn dae tzo vyndē. Ind dat is geschiet by den iairen vns heren, anno dñi .MCCCCxl. ind vā der zijt an bis men schreue .l. wart vndersoicht die kunst ind wat dairzo gehoirt. Ind in den iaire vns heren do man schreyff .MCCCCl. do was eyn gulden iair, do began men tzo drucken ind was dat eyrste boich dat men druckde die Bybel zo latijn, ind wart gedrukt mit eynre grouer schrift. as is die schrift dae men nu Mysseboicher mit druckt. Item wie wail die kunst is vonden tzo Mentz, als vurss vp die wijse, als dan nu gemeynlich gebruicht wirt, so is doch die eyrste vurbyldung vonden in Hollant vyss den Donaten, die dae selfst vur dez tziit gedrukt syn. Ind vā ind vyss den is genōmen dat begynne der vurss kunst. ind is vill meysterlicher ind subtilicher vonden dan die selue manier was, vnd ye lenger ye mere kunstlicher wurden."

(Likewise this said wonderful art was first invented in Germany, in Mainz on the Rhine. And it is a great honor for the German nation that such gifted men are to be found there. And that took place about the year of our Lord 1440, and from then on until 1450 the art and all that belonged to it were being studied. And in the year 1450, which was a jubilee year, printing began, and the first book printed was the Bible in Latin, and it was printed in a large letter. That is the type now used to print missals. Although the art was discovered in Mainz, in the manner aforesaid, as it is now commonly practiced, nevertheless the first preliminary experimenting was done in Holland with the Donatuses, which were printed there before that time. And from and since then dates the beginning of this said art. And it is much more masterly and more subtle than this first attempt, and the longer it continued the more artistic did it become.)

The Donatus mentioned here is the Latin syntax by Donatus, grammarian of the fourth century, which is said to have been

printed in Holland before Gutenberg worked at Mainz; but we have no documentary evidence as to the kind of type used in printing it. There is reason to believe that these pages, without making block books, might be typographic, that is to say printed in letters cut in relief on wood but not cast in metal matrixes cut with a punch.

This Cologne *Chronicle* although invoked in favor of the Low Countries contains a passage that would rather plead for Gutenberg: "Wer der eyrste vynder der druckerye is gewest eyn Burger tzo Mentz. ind was geboren vā Straissburch, ind hiesch joncker Johan Gudenburch." (The first inventor of printing, a citizen of Mainz, born in Strasbourg and called Johan Gudenburch.) (folio cccxij)

Three other documents confirm that. The first is taken from the report of the Gutenberg trial at Strasbourg (11) in 1439, relating to his partnership with Hans Riff, Andreas Dritzehen, and Andreas Heilmann. Among the testimony of witnesses that of Hans Dunne, goldsmith, deserves particular note. He declared that about three years earlier he had received from Gutenberg nearly one hundred florins, solely for things that related to printing. These three years he speaks of would make his work go back to 1436, the year Gutenberg became associated with Hans Riff, Andreas Heilmann, and Andreas Dritzehen.

The Dunne deposition casts little light on the objects of the partnership. If he received one hundred florins for things relating to printing, he says nothing at all as to whether his work comprised not only a press with frame and screws, as he specifies, but also movable type cast in metal. Auguste Barnard (12) thinks the sum was rather large for the time, and feels it must have been in payment for an important matter, the character of which can only be surmised. According to him, Dunne, who was at once goldsmith, foundryman, and mechanic, must have been charged by Gutenberg with the making of molds for casting type.



Chants Royaux OF PUY DE ROUEN

French Manuscript, 15th Century

(Bibliothèque Nationale, Paris)

Miniature showing a printing press

Study of the documents of the Strasbourg trial leads many German scholars (13) to conclude that the secret work then engaging Gutenberg and his three associates was the developing of a press, the prerequisite for typographic impression. Two pieces of contemporary evidence would seem to point to such a state of affairs some twenty years before the appearance of the first dated printed books.

One is the *Chronicon* of Eusebius (14). Mathias Palmiere of Pisa, who continued that chronicle, writes: "Naq' a Joanne Gutenberg, Züiungē, equiti Magūntic rheni solerti igenio libror' Imprimēdor' ratio [anno] 1440 iuenta." (By John Gutenberg zum Jungen, citizen of Mainz on the Rhine, an ingenious man, the art of printing books was invented in [the year] 1440.)

A book by an Alsatian humanist of the beginning of the sixteenth century, Wimpheling (15), fixes the place of this invention not at Mainz but at Strasbourg: "Sub hoc Roberto nobilis ars impressoria inventa fuit a quodam Argentinense." (Under this Robert [Rupert, bishop of Strasbourg, 1410-1478] the noble art of printing was invented by a certain Strasbourger.)

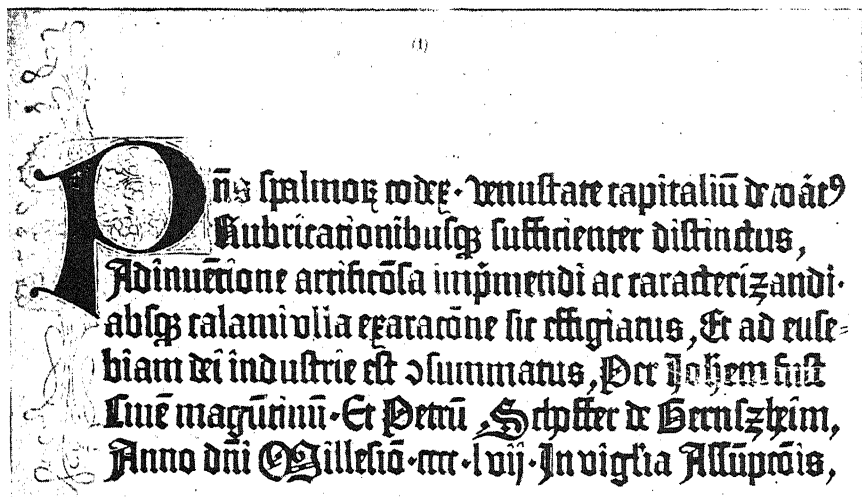
Whether the author of the discovery was born at Strasbourg or at Mainz depends on the interpretation of certain legal documents. The discussion is of less interest than are arguments questioning Gutenberg's claims in favor of Schoeffer.

The argument of Gutenberg's adversaries is that no printed book bears his name, and that the first book dated and signed is the Mainz *Psalter*, its colophon naming that city and giving the date as 14 August 1457, and mentioning the names of John Fust and Peter Schoeffer (Bibliothèque Nationale, Paris, books printed on vellum, 223 and 224). (16)

According to this theory Gutenberg was a member of a guild of goldsmiths, and had borrowed from coiners of money the art of punching a matrix, and from the medal makers the art of casting a fusible alloy in a mold prepared in advance.

But did he invent movable type?

In favor of Schoeffer is adduced the testimony of Abbé Trittenheim (24), according to which it was impossible for Gutenberg to use his types for printing because they were cut on the plate and could not be detached. This the abbé learned from Peter Schoeffer, John Fust's son-in-law, Gutenberg's sleeping partner, and he adds "homo ingeniosus et prudens faciliorem modum fundendi characteres excogitavit, et artem, ut nunc est, com-



COLOPHON OF *Psalter*

Mainz: Johann Fust and Peter Schoeffer, 1457
(Bibliothèque Nationale, Paris)

plevit." ([Schoeffer,] an ingenious and skillful workman, found an easier way of casting type, and perfected the art as it now exists.)

With the aid of this Trittenheim passage one critic (17) has demonstrated that Gutenberg was solely an experimenter, and that he should not be credited with the first printed books. That is also the opinion of Polain, based on a passage of Philip de Lignamine (18) setting forth the following fact in 1458: "Jacobus cognomento Gutenbergo patria Argentinus et quidam

alter cui nomen Fustus imprimendarum litterarum in membranis cum metallicis formis periti." (Jacob, named Gutenberg, born in Strasbourg, and another man named Fust, were skilled in printing letters on parchment by means of metallic types.)

Thus Gutenberg, aided by the advice and the purse of Fust, invented nothing more at the start than metal forms or punches, as is suggested by a passage in a manuscript of the sixteenth century, citing Gutenberg as a goldsmith "*adextre en tailles et caracteres de poinçon*" (skillful in cutting letters with punches). (19)

As an offset to this stands out certain other contemporary testimony. In [about] 1472 Guillaume Fichet (20), master of the college of the Sorbonne, announces "*Bonemontanus*" (Goodmountain or Gutenberg) as the inventor of movable type: *Ferūt enī illic, haut procul a ciuitate Maguncia, Ioannē quendā fuisse, cui cognomē bonemōtano. q' p'mus oīm impressoriā artē excogitauerit. q' nō calamo (ut prisci q'dem illi) necq' penna (ut nos fingimus) sed æreis lrīs libri fingunt. & q'dem expedit, polite, & pulchre.*" (They say it was indeed there, not a great way off from the city of Mainz, that there was a certain John, named Bonemontanus, who first invented the art of printing, by which not with a reed (as did the ancients) nor with a pen (as we do) but with brass types books are printed, and that speedily, elegantly, and beautifully.)

Thus, according to Fichet, Gutenberg seems to have been the inventor of the art of printing with movable type, and it is due to him that a method long sought for was actually realized.

Whatever the judgment of the various scholars may be about so controversial a question, attention should be given to a very curious manuscript in the library of the University of Göttingen. It is a document drawn up on 6 November 1455 by Ulrich Helmasperger (21), a notary, wherein is an allusion to the existence of a contract made about 1450 by Gutenberg with John Fust, by which Fust lent Gutenberg 800 florins, a considerable sum, for doing typographic work.

It is possible that after Gutenberg's unsuccessful efforts Fust may have made him new advances of money, forcing Schoeffer on him as a partner in the new venture, and that Schoeffer may have been successful in fashioning a mold that would cast all the letters of the alphabet separately in metal. Later the two partners got rid of Gutenberg, and when the partnership was dissolved they obtained a writ ordering Gutenberg to refund the money he had received. Certain scholars hold there were two rival establishments, one owned by Gutenberg, the other by Fust and Schoeffer.

We know of no dated books bearing Gutenberg's name. Lacking pieces of printing that can certainly be considered his work certain writers (22) base their case on a receipt dated 26 February 1468, of which a contemporary copy is preserved in the Mainz archives. In it a Mainz syndic, Conrad Humry, acknowledges having received from the Archbishop of Mainz 'a certain number of characters, letters, instruments, tools, and other things relating to printing which he had lent to Gutenberg and which had now been returned to him.' But the words are rather vague. There is no documentary evidence for attributing to Gutenberg unsigned printing before 1457, the date of the Fust and Schoeffer *Psalter*. The anonymous author of the second Chronicle of Mainz (23), in the period of 1459 to 1484, does indeed mention Gutenberg as the first Mainz printer, but gives the date as 1462.

It is this lack of information about Gutenberg that favors the position of the Schoeffer supporters, who call attention to a passage of Abbé Tritheim that is often cited (24): "His temporibus in civitate Moguntina Germaniæ prope Rhenum, et non in Italia, ut quidam falso scripserunt, inventa et excogitata est ars illa mirabilis et prius inaudita imprimendi et characterizandi libros per Joannem Guttenberger, civem Moguntinum, qui cum omnem pene substantiam suam pro inventione huius artis exposuisset, et nimia difficultate laborans, iam in isto, iam in alio deficeret, iamque prope esset, ut desperatus negotium intermit-

teret, consilio tandem et impensis Joannis Fust, æque civis Moguntini, rem perficit inceptam. In primis igitur characteribus litterarum in tabulis ligneis per ordinem scriptis, formisque compositis vocabularium, *Catholicon* nuncupatum, impresserunt, sed cum iisdem formis nihil aliud potuerunt imprimere, eo quod characteres non fuerunt amovibiles de tabulis, sed insculpti, sicut diximus. Post hæc inventis successerunt subtiliora, inveneruntque modum fundendi formas omnium Latini alphabeti litterarum, quas ipsi matrices nominabant, ex quibus rursum æneos sive stanneos characteres fundebant, ad omnem pressuram sufficientes, quos prius manibus sculpebant. Et revera sicuti ante XXX. ferme annos ex ore Petri Opilionis de Gernsheim, civis Moguntini, qui gener erat primi artis inventoris, audivi, magnam a primo inventionis suæ hæc ars impressoria habuit difficultatem. Impressuri namque Bibliam, priusquam tertium complessent in opere quaternionem, plusquam 4000. florenorum exposuerunt. Petrus autem memoratus Opilio, tunc famulus, postea gener, sicut diximus, inventoris primi, Joannis Fust, homo ingeniosus et prudens, faciliorem modum fundendi characteres excogitavit, ut artem, ut nunc est, complevit."

(At this time in the city of Mainz in Germany near the Rhine, not in Italy, as some have falsely written, was invented and discovered by John Guttenberger, a Mainz citizen, the wonderful and hitherto unheard-of art of printing books. Having risked on the invention of the art almost the whole of his substance, and struggling against great odds, now lacking this and now lacking that, he was almost about to give up in despair, when aided by the counsel and financial support of John Fust, also a Mainz citizen, he succeeded in bringing his task to a successful end. They first printed a vocabulary called *Catholicon*, using characters engraved in the proper order on tablets of wood, and arranged in forms, but in this way they could not print anything else, because the types were not movable but engraved, as we

Dñis diebs post festū trinitatis Inuitatorium,

Rege magnū dñm venite adorem⁹, De venite,

Dñis diebs post festū ephie Inuitatorium.

Adorem⁹ dñm q̄ fecit nos, De venite añ. Seruite.

Ecce vir qui non abiit in

consilio impiorū et in

via peccōe nō stetit: et i

cathedra pestilētie nō se

dit. Sed i lege dñi vo

lūtas ei⁹: et in lege eius meditabit⁹ die at

nocte. Et erit tanq̄ lignū qđ plātānū est

sec⁹ deorsus aq̄et qđ fructū suū dabit in

te suo. Et foliū ei⁹ nō defluet: et oīa q̄nq̄

faciet p̄phrabit⁹. Nō sic impij nō sūt: sed

tanq̄ puluis quē p̄at ventus a facie rē

ideo nō resurgūt impij in iudicio: neq̄

peccōes in cōsilio iustorū. Quā nouit dñs

viā iustorū: et iter impiorū peribit. O la De



have said. After this came the invention of more ingenious methods, and they found a way of making molds of all the letters of the Latin alphabet, which molds they call matrixes, by means of which they cast types out of bronze or tin, capable of standing any pressure, instead of cutting them by hand as they had done earlier. In fact, as I heard thirty years ago from Peter Opilio [Schoeffer] of Gernsheim himself, citizen of Mainz and son-in-law of the inventor, this art of printing had great difficulties from the start. For when printing the Bible, before they had printed three signatures they had spent more than 4,000 florins. Peter Opilio [Schoeffer], first an assistant and then, as we have already said, son-in-law of the first inventor, John Fust, a skillful and prudent man, found a more easy way of founding type and thus brought the art to the perfection it enjoys today.)

These last words, already cited, may serve in a certain sense to conclude this controversy as to the part Schoeffer and Gutenberg played in the invention of printing. Gutenberg seems to have been the first to use movable type cast in metal, to have received financial aid from John Fust, and his process seems to have been perfected by Schoeffer.

A German translation of Livy published at Mainz in 1505 by John Schoeffer, who had succeeded his father, is thus dedicated to the Emperor Maximilian: “. . . Solich wergk Allermechtigster konig (das zü vor ane ewr koniglichen maiestat zü Eeren, Dar zû Fursten vnd herñ Auch Gemeynnden vnd Steten Teutzscher Nacion, zû nütze in teutzsch bracht, vnd In der loblichen Stadt Mentz gefertigt vnd getrückt ist) wöll Ewr ko. M. gnediglich vffnemē. In welcher stadt auch anfengkliche die wunderbare kunst der Trückerey, vñ Im ersten von dem kunstreichen Johan Güttenbergk, Do man zalt nach Christi vnsers heren gebürth Tausent vierhunderth vnd fünffzig Jare erfunden, vñ dernach mit vleyss kost vnd arbeyt Johan Fausten vnd Peter

Schöffers zû Mentz gebesserth, vnd bestendig gemacht ist worden. Darvmb die selbe Stadt nicht allein bey Teützscher Nacion, Sund auch bey aller welt In ewige zeit (als wol verdyneth) gepreyst vñ gelobt solle werden, vnd dye Burger vnd eynwoner doselbist des billig genyssen." (. . . Which work may His Majesty, the mighty King graciously receive (a work which was put into German to the honor of your royal majesty, also to the profit of the princes and lords, the communities and the cities of the German nation, prepared and printed in the worthy city of Mainz). In which city was also first invented the wonderful art of printing, by the skillful Johan Güttenbergk, in the year thousand four hundred and fifty after Christ's birth, and there improved and perfected by the zeal and labor and with the funds of Johan Faust and Peter Schöffer at Mainz. For which reason this city shall be deservedly praised and commended not only by the German nation but also by the whole world for ever, something the citizens and residents therein shall justly enjoy.) (25)

In a word, it was apparently Schoeffer who, after the discovery of Gutenberg's process, made an important step forward in the former's technique by finding a means of casting metal type.

It is probable that among the first attempts that preceded the publication of the first printed book bearing a date and names of printers, Fust and Schoeffer, there were other experiments beside the important one of Gutenberg.

One calling for particular attention is credited to a goldsmith of Prag, Procopius Waldfoghel, who was a native of Prag and settled at Avignon in 1444. From that year on he made contracts with Avignon citizens, to teach one man the art of writing artificially, and to deliver to another "*diversas formas ad artem scribendi pertinentes*" (various molds relating to the art of writing). On the 4th of July, 1444, he gave a receipt for two alphabets belonging to Manaud Vitalis (26): "Eadem die [4 July 1444] cum Procopius de Bragansis, argenterius, habitator Avi-

nionis, teneat et possideat a dicto magistro Manauldo, duo abecedaria calibis et duas formas ferreas, unum instrumentum calibis, vocatum vitis, quadraginta octo formas ferreas stagni."

The Latin text carries certain phrases permitting one to believe that Procopius Waldfoghel might have had equipment for printing rather than a writing machine. The words *formas ferreas* would seem to refer to movable type cut in relief in a hard metal; there is apparently also reference to characters cast in soft metal (forty-eight forms in tin, *quadraginta octo formas stagni*). There was also a steel vise, *instrumentum calibis vocatum vitis*.

Another contract (27) dated 10 March 1446 seems to indicate that Procopius Waldfoghel had taught an Avignon Jew, named Davin de Caderousse, how to print, and that he had promised to give Davin twenty-seven movable Hebrew characters made of hard metal (*viginti septem literas ebreaycas formatas scisas in ferro*), in brief all the equipment necessary for printing: "Procopius promisit et convenit eidem judeo facere et factas reddere et restituere viginti septem litteras ebreaycas formatas scisas in ferro, bene et debite juxta scienciam et practicam scribendi sint duo anni elapsi ipsi judeo per dictum Procopium ostensam et doctam, ut dixit, una cum ingenis de fuste de stagno et de ferro." (Procopius promised and agreed to make, and when made to render and deliver to the said Jew twenty-seven movable Hebrew letters cut in iron, and within the space of two years well and truly to show and teach the said Jew the science and art of writing, as he had said he would, and also to supply him with the machine made of wood, tin, and iron.)

In a second contract of 16 April 1446 Davin de Caderousse acknowledges receipt of the printing equipment from Waldfoghel (28): "Judæus confessus fuit habuisse et recepisse a dicto Procopio videlicet omnia artificia ingenia et instrumenta ad scribendum artificialiter in littera latina." (The Jew acknowledged to have and to have received from the said Procopius all

manufactured equipment and instruments for artificial writing in Latin letters.)

The words *scribendum artificialiter* have caused much discussion. Some think (29) they refer to letters with a metal shank, but not cast, which were smeared with ink and then applied to books, whether parchment or paper. This was a way of replacing the pen of the scribe, but it was not a mechanical process for multiplying copies by means of movable type made by casting. Others (30) hold that the Avignon text refers not to a machine for writing but rather to a set of movable characters engraved in relief on hard or soft metal.

The problem of what experiments had been made in printing before 1457 remains obscure. Without questioning the important part Gutenberg had in the invention of printing and in the publication of the first books issued without the name of printer, one has to admit that at the same time similar efforts were being made, but so far as we know without practical results. It is thus that Abbé Requin, in reply to objections to his theory of Wald-foghel as printer of undated Hebrew books after 1444, admitted that though these works have not been discovered they may well have existed (30). If there really were attempts at printing at Avignon, he said, he did not see why it cannot be supposed that some one had tried to print Hebrew books.

Our problem now is to learn just what these first printing characters were and how they were made (32).

2

Printing Types

SOME have tried to trace the origin of printing types, not to classical antiquity on the strength of certain passages in Quintilian (1) and Cicero (2), but rather to the ninth century in the Far East. There is but slight evidence for the existence of the alleged engraved texts of the tenth century, namely in the historical manual by Seu Ma Koang (Ssü-ma Kuang) (3). But it is noteworthy that Marco Polo says not a word about such things in his story of his travels in those countries. There is no other mention of the engraved texts until the fourteenth century (4).

Courant notes a Korcan book dated 1377 that says it was printed by means of cast letters. This is no isolated case, for a decree of King Htai-Tjoung (Hetai-jong) published twenty-six years later, in 1403, contains this statement: "I will that copper characters be made for use in printing to the end of extending the diffusion of books." That imperial command was intended to provide a more durable substitute for wooden characters, which wore out too quickly. But that innovation was not imported from China to Europe.

The essential element in the invention of printing in the west is not that it was derived from wood-block printing (because of the difficulties of cutting and then lining up pieces of wood of the same size), but that it consisted rather in the creation of movable characters made from a fusible metal. To make them called for three things: a matrix or mold in which the letter is engraved

in intaglio; an alloy cast in the matrix, which forms in relief a reproduction of the character on the punch.

It has been maintained (5) that metal founders from the thirteenth century on used single letters engraved in relief on wood or metal for impressions in an earthen mold where the metal was cast. One of the articles, however, in the *Livre des métiers* of Etienne Boileau shows that members of the metal-founders' guild were forbidden to mold or cast objects bearing a legend, except when the letters had been printed one by one ("hors mis lectres chascune par li.") The characters had to be impressed singly. On the other hand, printing involves simultaneous application.

The word *forma* did not acquire the meaning of a movable character cast in metal until about the middle of the fifteenth century. Until then it had referred to the so-called form letter, that is to say to the large gothic letter of liturgical books as contrasted with cursive writing. The word is so used in the inventory of the books of Charles V. The word *character* meant a metal stamp (6).

Those stamps with characters in relief or intaglio were often used by bookbinders. Some have looked on them as the prototype of the type-founders' punch (7). They were used especially by binders, and their engraved parts were first done in intaglio, later in relief. The Leipzig museum has a binding of this kind credited to the sacristan of the Dominican cloister at Nuremberg, Conrad Forster by name. It is dated 1436, and the letters are in relief, proof that the bookbinder's stamp was engraved in intaglio. There exists a binding (8) dated 1442, with intaglio letters made by a punch engraved in relief letters (9). These recall those "cast in a mold" found in the historical museum at Basel. But that was not the source from which printing was derived; it was rather the method of engravers of coins and medals (10) that furnished the technique of reproducing a character by pouring molten metal into a mold. The whole difficulty lay in finding

Die heilige drie koninge dag omgrent uel in
 die mane nunc. **S**aturnus in den xxiij
 grad des lewis und geboindich. **J**upiter in
 der wage. **M**ars in dem ersten grade des scorpius. **V**e
 den xviij grade des wassergießers und geboindich. **M**er
 curius in der selbe zehens. **V**en in den xxiij grade des scorpius
 in die nach mittnacht ist die mane sol. **S**aturnus in dem
 grade des wassergießers. **D**ie mane in den x. grade des scorpius
Saturnus in dem xxiij grade des lewis und geboindich
 in den xxiij grade der wage. **M**ars in den xxiij grade des scorpius
Ven in den xi grade des wassergießers und geboindich
Jupiter in den xxiij grade desselben zehens

[illegible]

des zehens der zweihundertlich - Jupiter in dem
gen und der hundertlich - Mars in dem xxiij
Dens in der iij grade der fische - Mercurius
fische und der hundertlich -

Chlorine

an alloy that was not too hard or too soft to avoid cutting through the paper with the one or crushing the metal types with the other. That was what Gutenberg first set out to do, but we have not a single trace of his early efforts.

The oldest type is the large gothic, 8 mm. high, of a clear and regular design. It was used in the astronomical calendar that, according to the calculations of Bauschinger, the astronomer, was probably printed in 1447. The calendar was discovered in 1901 by Zedler (11) in the binding of a fifteenth-century lectionary which belongs to the Wiesbaden library (incunabula 254). The type appears again in the *Weltgericht* (Last Judgment), the oblong fragment discovered at Mainz in 1892 belonging to the Berlin library (12). It was found also in a Donatus (13) of 27 lines (Berlin; also Bibliothèque Nationale, Paris, vellum books 1036). It was used likewise in the famous 36-line Bible printed in two columns in three folio volumes (Bibliothèque Nationale, Réserve A 73), of which a dozen copies are known.

The same type appears in three other books: a calendar in verse for the year 1455, *Eyn manung der cristenheit widder die durken* (Warning to Cristendom against the Turks) (14) in the Munich library (Cim. 62 c); *Dis ist der Cisianus zu dutsche [und ein ieglich wort gibt einen tag]* (15) in the Cambridge University Library (incunabula 1, A. 1. 2); a medical calendar for 1457 with title: *Coniunctiones et oppositiones solis et lune ac minuciones elective nec non dies pro medicis laxativis sumendis In anno domini Mcccclvij* (Bibliothèque Nationale, Paris, Réserve V 725) (16).

Another smaller gothic type is found in the 42-line Bible issued in two volumes (Bibliothèque Nationale, Paris, vellum 67). It is the same as that used in certain editions of Donatus (Bibliothèque Nationale, Paris, vellum books 1038) and in the *Psalter* of 14 August 1457 (Bibliothèque Nationale, vellum books 223).

The *Letters of Indulgence* show a more rounded gothic face.

Ieden wi muze do nien do got oec i wi
 gebe Sie gene mit schreke dāhen Die
 got nre erkant noch forcht? en nien
 mag sich überge nicht Dor dē got ichē
 5 angeliect Katus wil do vrel tpe zhen
 Dū wil alle hofheit rechen Die nie ge
 datē den wille in Den wil er gebē ewige
 pin Dū wil den gude gebē Hy rim seude
 on ewig lebē Hīt die werlt on alle dīng
 10 Die in d werlt geschaffē sint Ezugne
 un werde auch zu nicht Als man wol

cū dorerē dorerē dorerē Pito pfo cū dōt? sum l fueri
 tis l suis sit l fuit aplē cū dōtū sum? l fuerim? sitis l fueri
 ris sit l fuerit Pito pllō pfo cū dōt? esse l fuisse eis ul
 fuisse rē l fuisse aplē cū dōtū eēm? l fuisse eēis l fuisse
 eris eēt l fuisse fūo cū dōt? eo l fūo eis l fuis eit l fu
 rit aplē cū dōtū nīm? l fuerim? eis l fueritis erit ul fuerit
 Infinito mō sū nūis i pfois tpe pnti i pito ipfo dōtū
 pito pfo i pllō pfo dōtū ēē l fuisse fūo dōtū iei Quo
 ptiopia dūē a ōbo pāllū pūcū ut dōt? futū ut dōcēd?
Ego legis legit aplē legim? legitis legūt Pito ip
 fco legebā legebas legebat aplē legebam? legeba
 tis legebāt Pito pfo legi legisti legit aplē legim? legic
 tis legētū ul legere Pito pllō pfo legeā legeas le ge
 rat aplē legam? legatis le gerāt Futio legam? leges le
 get aplē legemus legis legāt Impatius modo tēpōe
 pleni ad itundā i tēcā pfoam? lege legat aplē lega

FRAGMENT OF *Weltgericht* (LAST JUDGMENT)
 (Berlin Staatsbibliothek)

Inapit quistola sancti Jeroni
mi. Jo Paulinum presbiteru
de omnibus quibz habito
ne libris



Capitulu
primu.

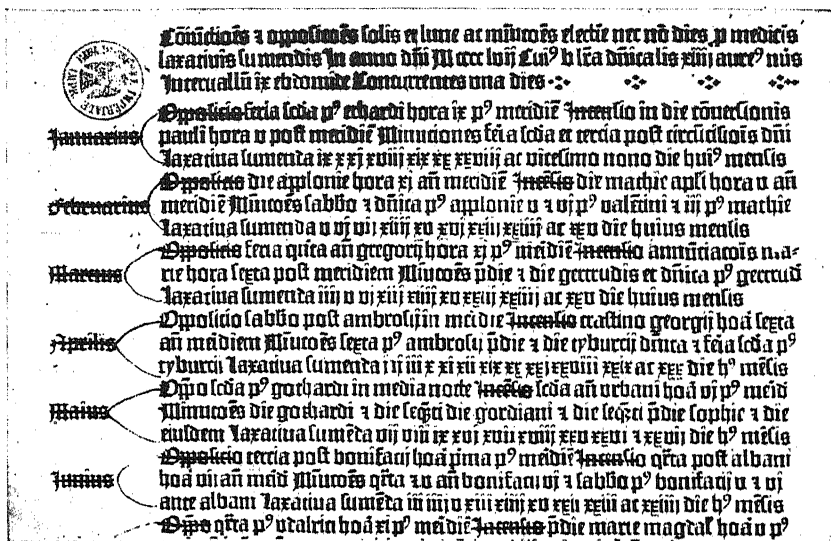
Facet am
brosius mi

chi tua munuscula perfectens de
tulit simul. et suavitissimas lite
ras: que a principio amicitiaz
facti iam. pbat fidei et veteris
amicicie noua preferebant: De
ra em illa necessitudo est. et xpi
glutino copulata. qua non vi
litas rei familiaris. non presen
tia tantu corporis. non subdola
et palpas adulatio: sed diuini
et diuinae scripturarz studia co
ciliat. Legim? i veteribz histori
is quosda lustrasse. primicias.
nouas adisse ipsos maria tra
sisse: ut eos quos ex libris no
uerant cora qz videret. Sic pita
goras memphiticis naues. sic
plato egiptu et archita tarenti
num tamqz ora ytalie que quod
dam magna grecia dicebat. la
boriosissime pagauit. ut qui
athenis ingre erat et potens. ni
hilqz doctrinas adhaeruit giga
ntia plonabatur. fieret peregrin?
atqz discipulus malens aliena
uerecunde discere qua sua impu
denter ingre. Deniqz cu litteras
quali toto orbe fugientes. pleg
tur. raptus apyratis i uenuda

uis. cia irano crudelissio pa
ruit ductus capinus undus
i seru? Tame qa philosoph?
maior emere se fuit. Ad trui li
mū lacteo eloquentie fonte ma
natem. de ultimis hispanie gal
liaruz: fimbis quosda uenisse
nobiles legim?. et quos ad co
mplacationem sui roma non
recreat. unius hominis fama p
dureit. habuit illa etas in audi
um omnibus sedis celebraduqz
miratim: ut urbem tanta ingre
si. aliud regem urbem querebat
Apollonius siue ille magus
ut vulgus loquitur siue philo
sophus ut pythagorici tradunt:
reaur ipsas. psumit caucasi.
albano. sotas. massagetis.
opulētissima regna iudie pene
fuit. i ad egyptu lausio phit e
anne istumillo puenit ad brag
manas: ut hyarcas in throno
sedente auro. et de tantali fore
potante: inter paucos discipu
los de natura. de moribz. de die
ru ac syderu cursu. audiret doc
eri. Inde p elamitas. babiloni
os. chaldeos. medos. assirios.
parthos. syros. phenices. ara
bes. palistinios. reifus alcan
dria: p regit ethiopiam: ut giga
nosophtias et famolissimam
solis menta uideret in sabulo:
Inuenit ille uir ubiqz qd disc
ere: i sepe. pnties. semp se me

There are two kinds of *Letters of Indulgence*, one with 30 lines to the page has the first words in gothic of medium size, the rest in rounded gothic. The other, 31 lines to the page, opens with large gothic and finishes with the rounded face.

This rounded gothic is used again in the *Catholicon* (17), the Latin encyclopedia of the thirteenth century compiled by Balbus



MEDICAL CALENDAR (LATIN, FOR 1457)
Coniunctiones et oppositiones solis et lunae
 (Bibliothèque Nationale, Paris)

of Genoa, dated 1460 with Mainz given as place of printing. It is a folio of 373 leaves in two columns of 66 lines each.

As printed books spread from Mainz their success was so great that efforts were made in neighboring countries to learn about this method of reproducing manuscripts. About the end of the reign of Charles V, Nicolas Jenson, master of the mint in Paris, received permission, later confirmed by Louis XI, to go to Mainz to discover the secret of the new invention (18): "Le iiiie jour d'octobre mil iiiie lviij ledit scieur Roy ayant entendu que messire

Jehan Guthenberg, chevalier, demourant à Mayence, pays d'Allemagne, homme adextre en tailles de caractères de poinçons, avoit mis en lumière l'invention de imprimer par poinçons et carractères, curieulx de tel trésor, le dit sieur Roy auroit mandé aux généraulx de ses monnoyes lui nomer personnes bien entendues à la dite taille et pour envoyer audit lieu secrettement soy informer de ladite forme et manière de ladite invention, entendre, concevoir et apprendre l'art d'icelle. A quoy feut satisfait au dit seigneur et par Nicolas Jenson feust entrepris tout le dit voyage que semblablement de parvenir à l'intelligence du dit art et exécution d'icelluy au dit royaume dont premier a faict delvoir dudit art d'impression audit royaume de France."

(On the fourth of October 1458 the King having learned that master Jehan Guthenberg, knight, living at Mainz in Germany, a man skillful in engraving and in making types with punches, had brought to light the invention of printing by means of punches and types, the said sire the King, curious about such a precious thing, had ordered the chiefs of his mint to nominate persons well versed in the said method of engraving and able to travel clandestinely to that place to learn all about that invention, and to understand, comprehend, and compass its art. The command of the said lord king was duly obeyed, and Nicolas Jenson undertook both to make the said journey and also to acquire for the said realm knowledge of the said art and its execution, he being the first to bring news of that art of printing to the realm of France.)

Jenson's mission certainly must have been a success; but instead of establishing himself in France he settled in Venice. Thus it is that after the first presses were organized at Strasbourg, Bamberg, Cologne, Eltwill, Augsburg, Basel, they gained ground in Italy.

The gothic types of the first works printed at Mainz were replaced by the so-called roman letters in the style of certain Italian manuscripts. It was two Germans, Conrad Sweynheim and Arnold Pannartz of Prag, pupils of Fust and Schoeffer, who founded

Epistolæ familiares. It was he who received, for five years, the earliest printing monopoly known. It is dated 18 September 1469, and runs thus: "Inducta est in hanc nostram inclytam civitatem ars imprimendi libros in diesque magis celebrior et frequentior fiet, per operam studium & ingenium Magistri Joannis de Spira. . . . Decreverunt ut per annos quinque proxime futurus nemo omnino sit, que velit, possit, valeat, audeatve exercere dictam artem imprimendorum librorum in hac inclyta civitate Venetiarum. . . ." (That the art of printing books, which has been introduced into our renowned city of Venice, may, owing to the labors, efforts, and skill of Master John of Speyer, become more celebrated and more widely used, they have decreed that for the next five years no one may desire, be able, dare, or venture to practise the said art of printing books in this renowned city of the Venetians.) (20)

Following John of Speyer two printers, Nicolas Jenson and Christopher Valdarfer, established themselves in Venice (21). In 1470 Jenson prints in roman characters such works as Eusebius' *De preparatione evangelica*; and in 1471 Valdarfer brings out the *Decameron*. Other printers, such as Ratdolt, flock to Venice. They reproduce Latin texts in roman types until Aldus Manutius and the Aldine dynasty created the type that bears his name.

Printing did not penetrate into France until about 1470. It has been asserted that a book by Francesco Florio *De amore Camilli et Emiliæ* dates back to 1467, because it bears the following colophon: "Francisci Florii Florentini, de duobus amantibus liber feleciter expletus est turonis. editus in domo domini Guillelmi archiepiscopi turonensis, pridie kalendas januarii. Anno dni MCCCCLXVII." (The book of Francesco Florio, of Florence, *De duobus amantibus* was happily finished at Tours, and put forth from the house of William the Archbishop of Tours, on the day before the kalends of January, 1467 [31 December 1466].)

Gaspatini pergamensis clarissimi orato-
ris epistolae liber foeliter incipit,

Audeo plurimum ac laetor in
ea te sententia esse: ut nihil a
me fieri sine causa putet. Ego
enim etsi multorum uerebar suspi-
tiones, quod a me sempronius antiqui fami-
liarum meum reiciebat: tamen cum ad incredibi-
le animi tui sapientiam iudicium meum refere-
bat: nihil erat quod ad a te improbatum pu-
tarem. Nam cum et meos nosset mores: et
illius naturam non ignorares: non dubitabam quod
de hoc facto meo iudicaturus esses. Non
igitur haec ad te scribo litteras: quo nouam tibi
de rebus a me gestis opinionem faciam: sed
ut si quando aliter homines nostros de me
scire intelliges: tu quod probe causam meam
nostri defensione mea suscipias. Haec si te-
ceris: nihil est quo ulterius officium tu-
um requiram. Vale;

Foelix Epistolae Gaspatini finis;

Ut sol lumen: sic doctrinam fundis in orbem
Mularum nutrix: regia paruis;
Hinc prope diuinam: tu quam germania nouit
Antem scribendi: suscipe promerita;
Primos ecce liberos: quos haec industria finxit
Francorum in tentis: aedibus atque tuis;
Michael Valartus: Martinusque magister
Hos impresserunt: ac facient alios;

Epistolarum Liber
Gasparinus Barzizius Bergamensis
Paris (1470)
(Bibliothèque Nationale, Paris)

But the scholars have very properly insisted that *editus* here signifies not *printed* but rather *issued* from the pen of the author.

The first book printed at Paris is the *Epistolarum Liber* of Gasparino Barziza of Bergamo. The work was done about 1470 by Michel Friburger of Colmar, Ulrich Gering of Constance, and Martin Crantz, whose workshops were located at Paris in the buildings of the Sorbonne. The book is printed in 14-point roman type and contains 118 leaves with 22 lines to the page. The design was furnished by a former rector of the University of Paris, and was inspired by the work of Sweynheim and Pannartz. The end of the Epistles contains a piece of Latin verse celebrating printing in Paris:

*Vt sol lumen! sic doctrinam fundis in orbem
Musarum nutrix, regia parisius;
Hinc prope diuinam, tu quā germania nouit
Artem scribendi! suscipe promerita;
Primos ecce libros! quos haec industria finxit
Francorum in terris. ædibus atq' tuis;
Michael Vdalricus, Martinusq' magistri
Hos impresserunt, ac facient alios.*

(As the sun spreads light, so thou royal city, nurse of the muses, dost spread wisdom throughout the world; receive thou this almost divine art of writing, first known in Germany and thine by right. Behold the first book produced by this industry in the land of the Franks and in thine own walls; Masters Michael, Ulrich, and Martin printed it and they shall make yet others.)

The second French book is the *Orthographia* of Gasparino Barziza of Bergamo. Printed in 1470 in roman type it has 361 leaves of 23 lines to the page. It was on this occasion of dedicating it to his pupil Robert Gaguin that Professor Fichet paid his tribute to Gutenberg (supra, p. 12).

Then followed the Sallust of 1470 or 1471, with 106 leaves of 23 lines to the page in roman characters, and the *Rhetoricorum*

libri III of Fichet containing a curious dedicatory letter from Fichet to Cardinal Rollin.

Roman types prevailed in the early editions of Latin texts printed in Paris, but gothic characters were by no means abandoned. One establishment (22), at the sign of the Golden Sun,

theyr hore whiche redounded m to the aper and rennyng
as they that helde not of heuen ne of erthe vpon theyr
enempes began to fighthe/certes when the troians sawe
the centaures mountyd on horsback rennyng as the
wynde they were so aferd and affrayed that they had
wend neuer to haue seen light day / how well they
toke corage and abode them / and the centaures fought
so myghtily among hem that eche oon of them bare to
the erthe a troian wyth the poynt of his spere and
among other gammedes was born down to the erthe
among them / and som were hurte a parte and some
releuyd of hurtynge / and some wyth oute hurte / when
gammedes felte hym self among the hore feet / he was
in his herte terryble angry / and sayd that he wold be
shortly auengyd / anon he aroos lightly and tooke his
swerd and seynge the centaur that had synpten hym

CAXTON'S FIRST BOOK
Recuyell of the Historyes of Troye
(British Museum)

rue Saint-Jacques, brought out on 21 May 1473 the *Manipulus curatorum* of Guido de Monte Rocherii, printed by Michel (Friburger) of Colmar, Vdalric (Ulrich) Gering, and Martin Chrantz (or Crantz). The book has 87 leaves in two columns, 40 lines to the page, printed in gothic characters.

The first book in French printed at Paris, the *Croniques de France appellées Croniques de Saint-Denys*, done by Pasquier Bonhomme at the sign of St. Christopher, 16 January 1476, was

in three volumes with two columns to the page, set in *batârde* gothic.

The three earliest books printed at Lyons are set in gothic: *Lotharii dyaconi cardinales compendium breve*, dated the 15th day before the kalends of October 1473, and printed by Barthélemy Buyer; the *Légende dorée* by Barthélemy Buyer (18 April 1476); and the *Miroir de la vie humaine* of Rodriguez, Bishop of Zamora, 8 July 1477.

These gothic letters or "lettres de forme" appear overburdened with ornaments in the books printed in the Netherlands (23), for example in the Donatus of 28 lines and the *Speculum humane salvationis*, done at Utrecht between 1471 and 1473.

Caxton in England created other gothic faces (24). In [1474 or] 1475 he printed, with Colard Mansion, Raoul Le Fevre's *The recuyell of the historyes of Troye*. He varied his faces in *The dictes and sayengis of the philosophres* (1477), later in *Godefroy of Boloyne, the which speketh of the conquest of the holy londe of Iherusalem* (1481), and Guy de Roye's *The doctrinal of sapience*, Westminster, 1489, and finally *Tretyse of loue* [printed by Wynkyn de Worde, Caxton having died in 1491], Westminster, 1493.

A round gothic appears in many of the early books printed in Spain; for example in the *Cosmographia* of Pomponius Mela, Valencia, 1482; the *Manuale Burgense*, Saragossa, 1497; the *Libros menores* of Brigard, at Pampeluna in 1499. Between 1475 and 1477 Lamberto Palmar, Fernandez de Cordoba, and Antonius de Florentia used roman and gothic faces at the same time.

Large gothic and roman were not the only faces found in books. There was also the semi-gothic, as in the *Speculum historiale* printed by Mentelin, and the *Lateinischer einblatt Kalender* printed at Augsburg by Zainer in 1471. "Lettre batârde," or semi-gothic was used also, for example, in the work printed by Colard Mansion in 1484, by Ballaert at Haarlem in 1484.

To sum it up, the characters in the printed book imitated the various styles of writing employed in manuscripts by scribes.

Sometimes, in printed texts as in manuscripts, a space is left

**Du dieu esculapius et de
sa figure**

Esculapius le dieu de
me decine doit estre fi
gure et paint en guise de vn
homme aiant longue barbe
laquele il atouchoit de sa des
tre main. Et en la fenestre
tenoit vn baston entour du
quel estoit entorseillie vn
serpent: sicomme il sera cy a
pres declairie ou il cherra a
point. Ces choses ainsi
premisees il est temps de cō
mencier ou premier liure de
nostre acteur ouide. Et pre
mierement aux tables de
chascun liure

Bâtarde TYPE OF COLARD MANSION
Bruges, 1484

blank for initials, to be inserted either by hand or by stamps. The title is written by hand, in red ink, by a specialist.

Little by little the printed book loses its resemblance to the manuscript. The title is printed on a separate page at the begin-

ning of the volume, with name of printer and date. Beginning with the year 1476 such a title page appears in the Regio Montanus *Kalendario* printed by Ratdolt at Venice. A printed book, however, can be distinguished from a manuscript by the fact that the letters in one copy of the printed text can always be superimposed on those in another, are always identical [unless, to be sure, the paper has not been washed or subjected to some other outside influence—Translator]. Moreover, the sequence of signatures, instead of being noted by hand to avoid misplacing during the imposition, is soon cared for by printed catchwords.

It was easy to see the superiority of the printed text to the manuscript, as well as to the block book, which demanded much work and was difficult to correct. From the middle of the fifteenth century many statements appear as to the novelties brought in by the technique of printing.

In the *Catholicon* of Balbus, Mainz, 1460, we read: "Hic liber egregius catholicon dnice incarnationis annis Mccccx Alma in urbe maguntina nacionis inclite germanice. Quam dei clemencia tam alto ingenij lumino. dono q' g'tuito. ceteris terrar' nacionibus preferre. illustrare q' dignatus est Non calami. stili. aut penne suffragio fz mira patronar' formar' q' concordia p'porcione et modulo. impressus atq' confectus est." (This noble book, *Catholicon*, in the year of incarnation of our Lord 1460 in the city of Mainz of the renowned German nation, which the clemency of God has deigned with such a lofty light of genius and free gift to prefer and to make glorious above all nations of the earth, Not by means of a reed or style or pen but by the wonderful agreement, proportion, and harmony of punches and types has been printed and finished.)

Cennino writes at Florence in 1471: "expressis ante calibe caracteribus, ac deinde fuis litteris" (with the characters first formed in molds and then with cast letters). Zainer in a work printed at Ulm in 1474 announces that it has been made "non

penna, sed stagneis caracteribus artificialiter" (not with a quill but mechanically by means of tin letters).

But the most significant tribute to printing is furnished by a letter of Giovanni Andrea Bussi to Paul II recommending to his favor the first printers established in Italy. The letter appears at the beginning of the *Tractatus et epistolae* of Saint Jerome printed by Sweynheim and Pannartz at Rome in 1468: "Hoc etiam felicitatis orbi christiano munus accessit ut pauperrimi quique parva pecunia bibliothecas possint redimere." (This happy arrangement for the Christian world makes it possible for the poor and for him who has little money to have libraries.) The writer develops the idea that, thanks to the new discovery, the poor can build up libraries for themselves at small expense; and he adds that it has permitted great works of literature, hitherto hidden in the dust of manuscripts, now to spread throughout the world.

Because of that very ability to diffuse ideas the printers were subjected to strict supervision. In France in 1531 the University sent four booksellers to examine the books on the shelves of their fellow dealers and to point out the works suspected of heresy. Refusal to submit the books to this examination meant imprisonment for the publisher. Some, like Martin Lhomme in 1560, were hung for selling books without authorization. Charles IX ordered the burning of books printed without permission, and the Parlements undertook to execute the order. All these trammels are ineffectual. Books thought to be dangerous circulate and sell, for, as has been said so well, suppression merely adds to their popularity.

PART

2

THE ORIGINS
OF
ENGRAVING

1

The Origins of Engraving

THE obscure problem of the origins of engraving has been complicated recently by discussions of scholars, each an ardent champion for this or that country as first in the invention of the craft (1). Polemics like these should find no place in an objective study trying to place the early engravings in time rather than in space. Such a prudent attitude does not force the critic to limit himself to the mere making of catalogues of prints, whether arranged by source or period or subject or method of execution. In preference to a purely analytical study it has seemed best here to substitute a synthesis, bringing the documents together and making an impartial summary of their character.

To find the first specimens of engraving there is no need to go back to prehistoric times, where such animals as reindeer, bisons, mammoths are pictured on bits of bone or ivory. Nor as examples of the process is there need to bring up the seals, cylinders, engraved armor or engraved gems left by the ancient civilizations of Egypt, Babylonia, Syria, or archaic Greece.

Engraving, in the modern sense of the word, may be distinguished from a decorative art that consisted in the representation of things on metal, stone, or wood. It is considered here solely as a means of reproduction, intended to multiply a work by running off numerous copies. This definition permits rejection of all hypotheses that carry engraving back to very distant origins, such as Emeric David's (2), pointing to the portraits of illustrious

persons reproduced by Varro (3). In that passage there is mention only of cut-out patterns similar to those used by the Egyptians for their hieroglyphics, according to an opinion of Léon de Laborde (4). The same holds true also of the binder's goffer irons, the pieces of jewelry, funeral plates, intaglio or relief impressions, seals, enameled metal, so common during the middle ages, objects which really are the preparatory essentials for an invention but not the invention itself. Engraving began only on the day when man was first able to print a picture on paper, no matter how it was done, whether on wood or metal, in relief or intaglio (5).

THE WOODCUT

It is generally agreed that engraving on wood is the oldest method of making many prints from a single original. Though this has been denied by certain critics (6), who insist that engraving on metal is earlier, and who ascribe that invention to the goldsmith and silversmith, their proofs do not seem convincing enough to be accepted here. In the absence of arguments based on incontestable dates it seems best to accept engraving on wood as the oldest method.

SECTION 1

PLAYING CARDS

The usual theory credits the discovery of woodcuts to the makers of playing cards. A counter-claim argues that the pictures of saints cut by the monks or lay craftsmen may be contemporary with the playing cards if not earlier; adding that before citing western testimony of the fourteenth century one must admit that the art was known centuries earlier in far-eastern monasteries

(7). Woodcuts done in the middle of the ninth century have been found at Thouen-Houang [Tunhwang, in the Kansu district], and Buddhist wood blocks of the tenth century at Douldour-Acquor [Duldur-ökür] in Chinese Turkestan (Pelliot room in the Louvre). The Pelliot expedition found also, in a cave sealed up since 1035, an engraved proof showing the Buddha with one hundred arms. But there is no documentary proof that the method was ever imported into Europe from China, or even that it was ever practised again in China.

The theory that playing cards are the oldest specimens of woodcuts or block printing is indeed founded on certain texts that speak of such cards, but those documents have no great weight. A manuscript on the game of chess, with pictures accompanying, dated 1331, in the Escorial, is cited. Looking at this in connection with a collection of Spanish laws of 1387 prohibiting the playing of dice and cards, has led some to conclude that playing cards existed in Spain at the end of the fourteenth century. But the word "naypes" [Spanish for playing cards, from the Arabic *naib*—Translator] was added in an edition of 1640, and is not found in the ordinances of 1545 and 1608. It may also be observed that even if cards did exist in Spain at that time they may perhaps have been painted rather than engraved (8).

The same argument may be urged against texts relating to the introduction of playing cards into Italy. Thus it is said that cards had been known in Viterbo since 1379 (9). That same year the Belgian royal archives mention them in that country (10). Others, like Zainer (11), speak of them as already found in Germany. A Latin manuscript (12), *Tractatus de moribus et disciplina humane conversationis*, written in 1377 by Brother Johannes (of Rheinfelden, near Basel), has this interesting preface by the author: "Hinc est quod quidam ludus, qui ludus cartarum appellatur, hoc anno ad nos pervenit, scilicet anno domini MCCCLXXVII." (From there a certain game called game of

cards came to us in the year of our Lord 1377.) He adds: "Quo tempore autem factus sit, per quem et ubi penitus ignoro." (When and by whom it was made I do not know at all.)

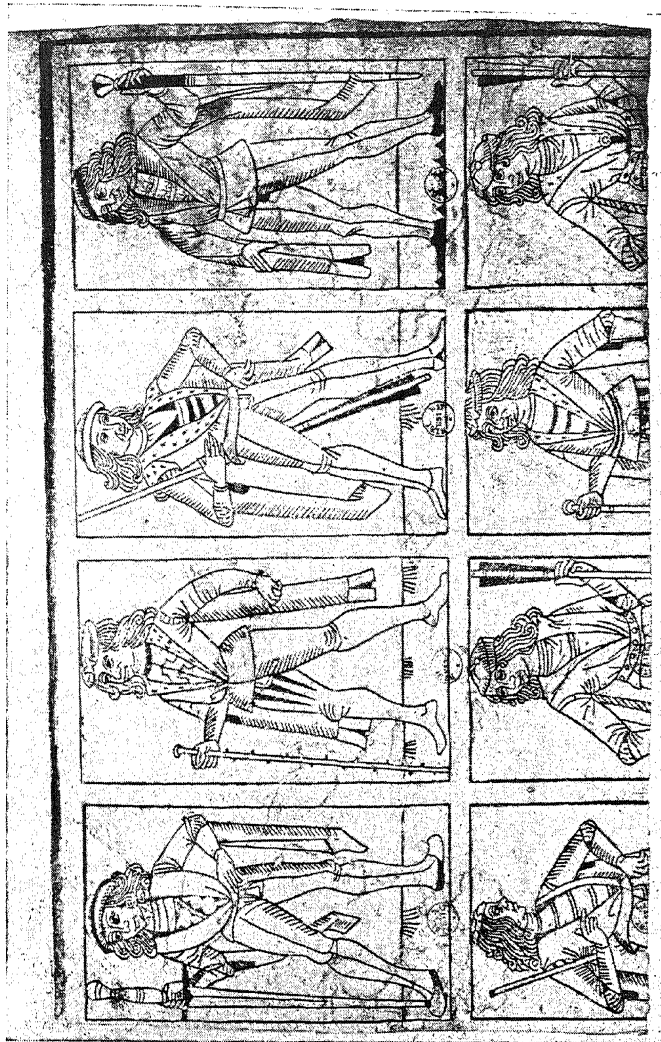
France relies on a register of police ordinances of Lille (13) to show that playing cards were in constant use on 4 July 1382.

An order of that date enjoins "de non juer as dez, as taules, as quartes, ne á nul aultre gieu. Que nuls ne soit si hardis uns ne aultres, quelz que il soit qui depuis maintenant en avant en ceste ville, jueches, de jour ne de nuit, as dez, as taules, as quartes, ne a nul autre geu quelconques . . . Faict le iiij^e jour de juille, l'an mil IIJ^e IIIIxx et IJ." (Playing with dice, checkers, or cards or any other game; that none be so daring, nor any others whatsoever, whoever they may be, from now on in this city, by day or night, to play dice, checkers, cards, or any other game at all . . . given the fourth day of July in the year one thousand three hundred eighty and two.)

One entry in the *Chambre des Comptes*, in 1392, made by Poupart, treasurer of Charles VI, runs as follows: To Jacquemin Gringonneur, painter, for 3 packs of cards in gold and various colors, with various designs, to lay before the said sovereign the king, for his pleasure, 56 Paris sous.

For cards for the queen another entry in the fourth account book of Hémon Raguier, the queen's treasurer, folio 114, verso, stands thus: To Guiot Grosselet, scabbard maker, a case for the queen's cards, the little rods of ivory, 12 Paris sous.

An ordinance of the prevost of Paris, 22 January 1397, forbade artisans playing cards during working hours. In the fifteenth century an important text demonstrates the existence of an organization of master card makers. It is found in the Toulouse municipal archives (14): These are the *Statuta neperiorum* (statutes of the card makers) for 1465. It is the code of the master card makers (*cartarii* or *neperii*), in 36 articles, setting forth the rules governing the rights and duties of the gild.



FRAGMENT OF A 15TH CENTURY SHEET OF PLAYING CARDS
 DONE BY JEHAN DE DALE, CARD MAKER OF LYONS
 (Bibliothèque Nationale, Paris)

Article ix makes the manufacture of cards akin to the making of religious images. All members of the gild have the privilege of making *naypes* or cards, sign boards, and images on paper, to the honor of God, of the saints and the religious orders in Toulouse, of painting escutcheons, shields, or *fleurs de lis*. The candidate for master card maker had to engrave a mold or matrix (as a demonstration of his right to admission).

Many of these master card makers are known. For Lyons, Natalis Rondot, in his studies of the artists specializing in this field in Lyons in the fifteenth century, has drawn from the municipal archives the names of the master card makers there established. He has found 39 between 1444 and 1489, and 24 others in 1492 and 1493. Among the oldest are James du Boys (1444-1481), Pierre de Lan, and a Pierre named "faiseur de molles de cartes (maker of card molds). Lyons tax rolls of 1444 and following years name many "tailleurs de molles de cartes" (cutters of card molds) (15).

At Limoges Jean le Roy or Jean Roy is found in 1427-1461, Étienne Lasendon in 1466, Jean Riveau in 1469, Pierre de Beaunom called Lobre, "factor cartarum" (card maker) in 1479, and Jean Motet.

The records of the Avignon notaries show numerous important references to makers of playing cards. In the papers of a Beaulieu, Avignon notary, the Jacques Girardi documents speak of a contract made on 15 January 1431 by a certain Bernard Villarmont, a paper maker, living in Entraigues, who contracted to turn over all the paper he made to two Avignon merchants, Nicolas d'Ambroise and Odet Bouscarle—for every ream of paper fit for the making of playing cards.

In a statement of debt found in the records of Gilles Rastelli d'Avignon (office of Vincenti, notary, 1462, folio 10) a certain Laurent Dantrabay acknowledges as security for his loan of 5 florins receipt in 1462 from Richard Rétif of a wooden mold for making cards.

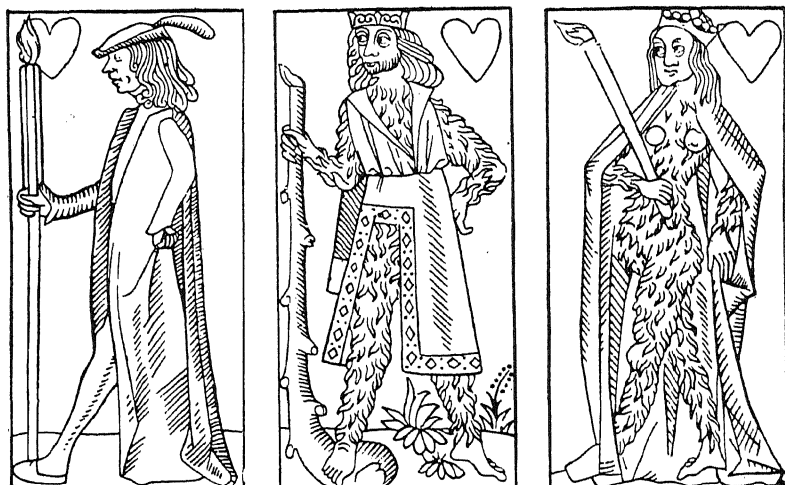
We know the names of some of these card makers. In 1493 Guy Duchâtel sold 3 gross of cards to Jean Fort at the rate of 34 gros the gross. In 1494 Jean Chaudet cedes a claim to Pierre Perrosset, maker of playing cards. The Jean Tavani records show an apprenticeship contract between Jean de Dale, from Bourg, who came to learn the trade of card maker, and Charles Charvin, 4 August 1500.

All these documents from the archives show the rôle played in the origins of engraving by the French card makers of the fifteenth century. In the historical exhibition of the paper industry [at Paris] in 1900 there was on view a playing card showing a king with a lion, from the Dresden print room, dated by Lehrs, the former curator, about 1450; alongside it were cards made by Jean de Dale (1460-1470) and others a little later (1477-1485) from Vital Berthin of Beaurepaire. They represent Joshua, Judas Maccabeus, David, Hector, Alexander, Julius Cæsar, Arthur, Charlemagne, Godefroy of Bouillon, for the men: Deipylle, Iconia, Thamaris, Semiramis, Bathsheba, and Penthesilea, for the women. They were made by Jaques, whose name is engraved on two, and whom Natalis Rondot mentions as a mold cutter living at Lyons in 1472.

F. Clerc issued other cards at Lyons of which specimens are found dated between 1485 and 1496, preserved in the Bibliothèque Nationale, Paris. They show two savages and other persons, clad in sumptuous ermine robes. Another card is found in the Bibliothèque Nationale with sixteen figures showing kings and queens for two decks.

At the Dijon library is a sheet composed of twenty cards, showing kings with mantles decorated with *fleurs de lis*, and queens clad in richly embroidered robes. The kings are the three lay peers (the dukes of Normandy, Burgundy, Guyenne), five ecclesiastical nobles (the dukes of Rennes, Laon, Langres, the counts of Beauvais and Châlons). The queens are mythological: Helen, Juno, Venus, Pallas.

And so, alongside the prints, religious or mythological or profane, made by the first wood engravers, beside the craftsmen described by the most varied names (*image cutters, makers of paper images, image makers, mold cutters, ciripagus, incisor lignorum*, or *wood cutter*; *Formschneyder*, or *form cutter*, in German; *printer* in Flemish; *intagliador de figure de ligno*, in Italian, or *wood engraver*) it is well to make a place for card makers, master



PLAYING CARDS PRINTED AT LYONS BY F. CLERC (1485-1496)
(Bibliothèque Nationale, Paris, Print Room)

card makers, divided into mold makers, card makers, card printers. Definition of these terms and of the technical processes they refer to may well cause controversy.

Were these cards painted or engraved?

It is not before the middle of the fifteenth century that we find the first cards printed as woodcuts, such as those in the Ambras collection at Vienna (16). Up to that time cards were painted, not cut on wood. The German word describing these card makers is very telling, *Kartenmaler* (card painters). Paulus Paulirinus (17), a Prague Jew of the middle of the fifteenth century, defines

these workmen thus: "Est artifex sciens cartas facere ex papiro . . . quibus infigit ymagines aut alios karakteres certo in numero pro ludo puerorum arte pictoria de manu precise aut per formas ad hoc dispositas" ([The cartularius] is a workman who knows how to make cards from paper . . . on which he puts images or other characters to a definite number by hand or by forms made for the purpose, these pictures or characters being set forth in certain number for play by boys in pictorial art.)

According to this definition a distinction should be made between the first card makers, whose rôle was limited to coloring the pictures drawn or traced with a kind of stencil, and those who later printed the cards by means of cut blocks [or planks]. This industry did not develop until the second half of the fifteenth century, as is shown by Italian as well as German documents (18). A notary register of Venice published by Cecchetti mentions an illuminator of Bologna, Giovanni de Biaxio, as making wooden forms in 1447. The same writer alludes to the demands made by painters on the government of Venice in 1441 to protect "l'arte, e mestier delle carte, e figure stampide, che si fano in Venesia" (the art and craft of cards and printed figures in Venice).

All this shows that printed playing cards appeared too late to be considered the oldest monuments of engraving, and it is not in that industry we are to search for the origin of the "image cutters."

SECTION 2

THE IMAGE CUTTERS

Their ancestors seem rather to have been the craftsmen making wood forms for use in printing on cloth. Without going back to the Copts of the sixth century we can find many specimens of such fabrics in the middle ages used for altar frontals and church banners (19). There was no paper of a size large enough to

permit these prints to have been made by burnishers (*frottons*) from designs cut in wood. The cloths that have been preserved seem to have been very large. After being printed they were colored; but that painting must not make us forget they had been printed from blocks. An antependium of the Tyrol; the history of Œdipus, of Sion in Valais (Basel Museum); a chasuble of Val d'Aosta; and a lectern covering of Innichen give an idea of these fabrics.

The usual technique, as in woodcutting, was to draw the design to be reproduced, in reverse, on a block of hard wood, such as pear or walnut. The wood was then cut away, except along the lines of the drawing, similar to our relief cutting; the uncut design was then covered over with a sticky liquid, using a formula given by St. Catherine's convent at Nuremberg. The cloth was then laid on the block and pressed down by a burnisher or ball of horse hair covered with linen. For pieces of hemp substitute sheets of paper, and you have an actual print. To make such a print the thick ink must be replaced by ink made from water and lamp black [mixed with boiled starch or some other vehicle].

Suggestions for the woodcutters came not only from the textile industry but also from the manufacture of the stamps used for marking. These stamps furnished letters for illuminated manuscripts, or for ornaments for the binding, or for decorations for metal plaques. They were generally cut in relief, made from intaglio matrixes, such as the copper plates used on tombstones or by goldsmiths. The initial letters V and Q of the Cistercian monastery of Vauclerc are of this type (20). On the verso of these letters the parchment shows traces of fulling, proof of application of pressure. These letter engravers called at first *Briefmaler* (letter painters) in German and later *Briefdrucker* (letter printers), *Beeldeprinter* (letter printers) in Flemish, *stampatori* (printers) in Italian, may thus furnish the preparatory elements for woodcutting.

To these letter printers there stood in close relation the illuminators, who used for their manuscripts stencil patterns or orna-



EDUCATION OF THE VIRGIN

Also known as St. Anne, with the Virgin and Seraphim. Impression on cloth (Forrer Collection, Strasbourg. Now in Germanisches Nationalmuseum, Nuremberg).

ments in relief, wood or metal, for mechanical reproduction of their drawings. Paul of Prague (21) gives details, apropos of the workman named *ciripagus* defined thus: "Ciripagus est arti-

fex sculpens subtiliter in laminibus ærcis ferris aut ligncis solide ligne aut altero ymagines scripturam et omne quod libet ut post imprimat papiro aut parieti, aut asseri mundo faciliter omne quod cupit aut est homo faciens talia cum patronis." (Ciripagus is a craftsman who, in sheets of copper, iron, or hard wood, or other materials, skilfully cuts images, writing, all kinds of things, to be used for printing on paper, on the wall, on an even surfaced board, whatever he pleases. The name is also applied to the workman who does this with stencils.)

Cennino Cennini (22) tells about this use of stencils in a chapter called *Modo de lavorare colla forma dipinti in panno* (method of working with stencils painted on cloth).

It is easy thus to see what sources the early engravers drew on. There were first the printed cloths, "des figures d'entailures, des draps imagiés" (figures engraved by relief processes, cloths with pictures on them), to use the traditional expression for fabrics according to a practice used in Europe from the twelfth century. We have an example in a Siegburg cloth of that period. An edict of Jaime I, king of Aragon, forbidding "estampados" (printed) cloths alludes to it. Parallel to that influence is, on another side, that of the impressions made by heated irons. Finally, one should add also the marks made by a stencil.

But the form obtained by the engraver at the beginning of the art is looked at as a simple auxiliary of painting. It is a means of mechanical transfer, simpler than illuminating by a stencil. This practice everywhere was looked on as a dependency of the art of painting. In Austria in 1450, according to Forrer, the engraving of models for printing banners and flags was the exclusive privilege of the painters. In France and Flanders the engravers were subordinated to the guild of the ornamenters and illuminators (23). The first prints looked like the work of the miniaturists, the blacks added by hand, as if they wished to be hidden under the make-up of an illumination (24). The drastic regulations of the guilds seemed to aim, if not at exclusion of the "tailleurs de

molles" (mold cutters), at least at keeping them subordinate (25). At Bruges the painters lodged complaints with the magistrates against the image makers, and thereby succeeded in compelling them to sign their work (26).

In other cases the image cutters are classed with the carpenters, which sometimes led to difficulties (27). In 1393 the accounts of the Duke of Burgundy show that the painter Jean de Beaumetz drew the figures for a print and that the engraving was done by a workman named Jehan Baudet: "A Jehan Baudet, charpentier, pour avoir fait et taillé des molles et tables pour la chapelle de mon dit seigneur, du dit Champmol, dite la Chapelle des Anges, et à la devise de Beaumetz. Onze journées pour deux gros." (To Jehan Baudet, carpenter, for having made and cut the molds and blocks for the chapel of my Lord, the said Champmol, for the Chapel of the Angels, after the designs of Beaumetz. Eleven days' work for two gros.)

When an image cutter took the liberty of working without being a member of the carpenters' gild the gild interfered. In 1452 the carpenters of Louvain (28) went into court against Jean van den Berghe, "Print-snyder" (print cutter), claiming that he ought to be a member of their gild and to conform to its regulations. His answer is that his profession is totally different from that of the carpenters. But the Louvain magistrate decided in favor of the gild, and forced him into it.

These obstacles the first lay wood cutters had to face made it hard for them to expand the trade. Hard and fast regulations enforced against them compelled the treatment of engraving as a counterfeit of illumination. It is correct to say that the first colored wood blocks, imitating miniatures, are graphic counterfeits.

Within the cloisters the monks, not subject to the gild regulations, are able to work at their prints more tranquilly than their lay brethren. Their prints circulate unnoticed, are run off without being proceeded against, even circulate outside, thanks to an

effective system of distribution. That explains why the first engravings have a monastic origin and character.

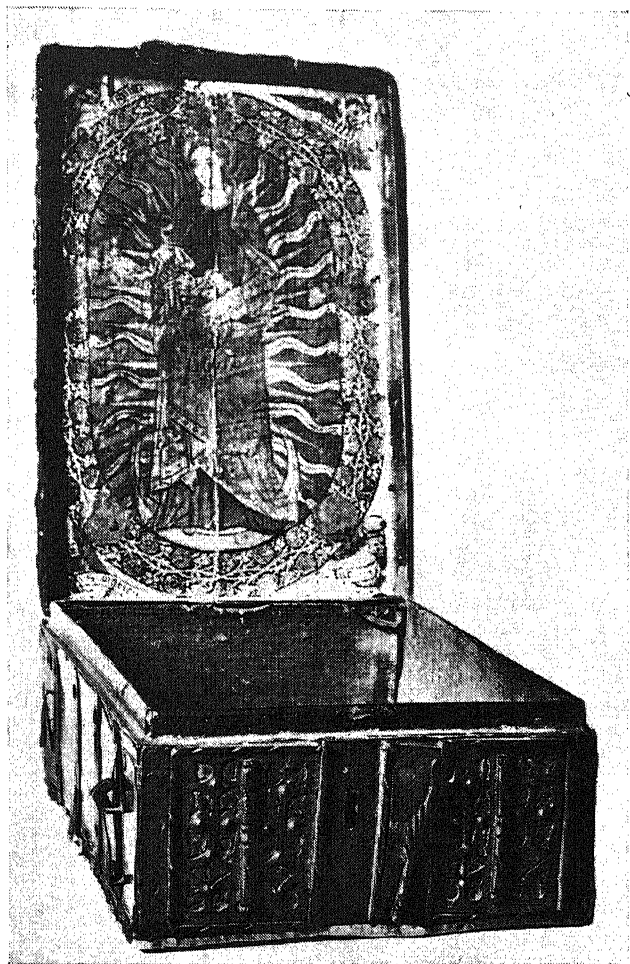
The critic has long tried to distinguish those made in the Low Countries, France, Italy, Germany. That regional differentiation is hard to establish, for many of those prints may have been made in some abbey and sold in its affiliates, with no way certainly to fix their real source. Among the abbeys of Cluny, Cîteaux, la Ferté in France, and those of Tegernsee in upper Bavaria, Mondsee in Austria, Saint Zenon near Salzburg, Saint Gall in Switzerland, Groenendaal near Brussels, Louvain (convent of the Augustinians of Windesheim), Béthanie near Malines, relations were close.

Circulation of these prints had both a commercial and a religious character. It met the demand of the faithful who wanted religious pictures. They served as a piece of propaganda for the faith. They were hung on the walls of the home. A charming picture by the Master of the Annunciation in the Brussels museum shows us nailed to the wall, above the fireplace, a wood engraving representing Saint Christopher. Pilgrims looked on these woodcuts as talismans, sewing them up in their garments. The prints protected the traveller against accidents and sickness, and he pasted them inside his wood or iron chest. They are thus found preserved inside the covers of books and manuscripts. They are in a way portable altars.

Their distribution is favored by the system of indulgences. Organized by Clement VI, developed under Boniface IX, the system spreads under his successors, and extends to various holy places the privilege of indulgences reserved for Roman basilicas. Wood engravings lend themselves to this practice; they are offered as souvenirs to the faithful in exchange for their penance, and are fitted to their taste according to regions. At the time of the Council of Constance when John Huss, the great opponent of images, was on trial, a delegation of bishops is sent to

study the question. The prints usually show masses of Saint Gregory or scenes from the life of Christ or the Virgin.

Proof that they were made in cloisters or abbeys comes from certain texts, such as an inventory of the Nun Jacoba van Loos-



TRAVELLER'S TRUNK

With 15th Century Woodcut on the Inside of the Cover
(Bibliothèque Nationale, Paris, Print Room)

Hensberge (29), who after having been abbess of Thorn, near Maestricht, retired in 1455 to the convent of Béthanie at Malines founded in 1421. This has the following passage: "novem printe lignee ad imprimendas ymagines cum quatuordecimaliis lapideis printis" (nine wooden forms for printing writing and pictures, with fourteen forms in stone). Thus this nun had nine forms in wood for printing images, and fourteen other forms in stone. She was not the only one in that field. In Flanders the "Broders van het gemeene leven" (Brothers of the common life), an order formed by Geert de Grote of Deventer and his friend Florent Radewijn found monasteries at Groenendaal, Louvain, Alost, Gouda, Utrecht, Zwolle, Bois-le-Duc, and Cologne.

SECTION 3

MEANS OF DATING WOODCUTS

When did this engraving of images begin?

The question is difficult to answer because of the lack of precise proof as to the date of their first appearance. It is true that some prints are dated. Three of these are important. The oldest in the Brussels print room, dated 1418, shows the *Virgin and the infant Jesus surrounded by four saints*. The Virgin is seated in the middle of an enclosure called "hortus conclusus" [garden inclosed, cf. The Song of Solomon, iv, 12—Translator], holding the Child on her knees. He is presenting the wedding ring to Saint Catherine, at his right; Saint Barbara is on the left; Saints Dorothea and Marguerite are seated in the foreground. On the gate of the enclosure is written MCCCCXVIII. The print is sadly rubbed, having been found in 1844 at Malines in an old chest, pasted to the lid. Although the authenticity of the date has been questioned by certain critics (30), others accept it (31).

An engraving no less celebrated is the *Saint Christopher* of 1423 discovered by Heinecken in a manuscript of 1417 in the



SAINT CHRISTOPHER
 Anonymous Woodcut, 1423
 John Rylands Library, Manchester

Carthusian nunnery of Buxheim in Swabia. Part of the Spencer collection, it now belongs to the John Rylands library at Manchester. Saint Christopher is a giant carrying a child and crossing a river as he supports himself on a palm tree. At his left is a hermit with a lantern in hand; at his right a landscape with a mill and a miller carrying a sack on his back (31A).

The third dated piece is a *Saint Sebastian* from the Weigel collection in the Albertina print room at Vienna. It shows the saint lashed to a tree and pierced with arrows. It is accompanied by a wood block text of prayers, in German, ending with the year 1437. The date does not seem to refer to the year of execution (32), but rather to the time of a pilgrimage (33). Saint Sebastian was a protection against the pest. At the top of the picture is a T, symbol of the Anthonites, the monks who treated those afflicted with Saint Anthony's fire.

These three examples are enough to show the danger of uncritical acceptance of a date, even one engraved and printed on the specimen in question. All the more necessary is it to challenge dates added with a stamp, or written by hand, as in a print (*Christ bearing the cross, with Saint Dorothea and Saint Alexis*) in the Germanic Museum at Nuremberg, which bears 1443 in manuscript.

What are the means of dating a print? Various methods have been urged, but all call for much reservation.

Many scholars hold the style as an essential element. Thus they have drawn up systems of classification based on the type of curve employed. They make a difference between gentle curves and curls, and other kinds of hooked curves. Some have tried to look on them as peculiar to one country or another, but they indicate a period rather than a place. Thus, for example, curves gentle or sharp, (among which may be found some shaped like hair-pins, anchors, some lightly reversed, used in delineating the eyes or garments,) such things as these cannot tell the place



O hailiger harte vnd martirer sant Sebastian. wie ist
 so groß din uerdienen. Bittet für vns vnsern herren
 ihesum xpm das wir von der plage vnd dem siertagen ey-
 dymia. vnd dem gassen tode vnd von allen vngewonli-
 chen töden durch din gebett vnd uerdienen beschütet vnd
 beschirmet werdent. Amen. Die collecta.

Almächtiger ewiger got: wir bitten dich das du durch
 uerdienen vnd bitte dines hailigen martirers sant
 Sebastians. vns vor der plage eydymia vnd dem gassen
 tode vnd vor allen vngewonlichen töden behüten wellest.
 das sy vns nit berüre noch begriffe durch das uerdie-
 nen dines würdigen martirers sant Sebastians. Des
 helfff vns der da ruffnet in ewigkait Amen.

• S. 31. • Mat. xxv.

SAINT SEBASTIAN
 Anonymous Woodcut, 1437
 (Albertina, Vienna)



SAINT DOROTHEA

SAINT ALEXIS

CHRIST BEARING THE CROSS

Anonymous woodcut, 1443

(Germanisches Nationalmuseum, Nuremberg)



VIRGIN AND CHILD IN A GLORY;
 or, MADONNA WITH FOUR PIGEONS
 Woodcut of early 15th Century
 (Berlin Print Room)

where a print was made. They are found in church glass in various countries: at Paris in the chapel of Nôtre Dame; at Le Mans in the Saint Stephen's church; in the paintings in the cathedral at Cologne; in the chapels of Westminster Abbey; and in certain printed cloths belonging to the early fifteenth century, such as Saint Anne, the Virgin and the Angels of the Forrer collection.

The hooked curves, whether they are double, rounded, vertical, acute angled, re-entering or salient angles, in form of a horseshoe, do not indicate the style of a print. The same forms are found also in church windows nearly all over Europe: in the Milan cathedral, at Marburg in Saint Elisabeth's church, at Walburg in Alsace, and in the miniatures of certain manuscripts of the late fourteenth century, such as the psalter of Landgraf Herrmann of Saxe-Thuringia.

It is in this group of prints distinguished by hooked curves that people have tried to place one of the oldest prints related to the Brussels *Madonna* of 1418, namely the *Madonna in a Glory with four Pigeons* of the Berlin print room. She stands erect, turned to the left, holding an apple in one hand, carrying the child Jesus on her arm, his head surrounded by a cloud surmounted by a cross. She is clad in a long robe, with hooked or angular folds, which falls on a crescent; she is encompassed with an aureole supported by four angels. In the corners four pigeons with streamers bear an inscription in German.

It is certain that characteristics such as the form of curves in garments may help to date a print, but they can not fix its place of production.

Other means to this end have been sought, for all these primitive pieces are anonymous. There need be no problem of arranging them by authors, for the artists are usually unknown. While engraving on metal has monograms, even signatures, scarcely half a dozen of these xylographs bear the names of artists. The Munich print room has two, part of a series about

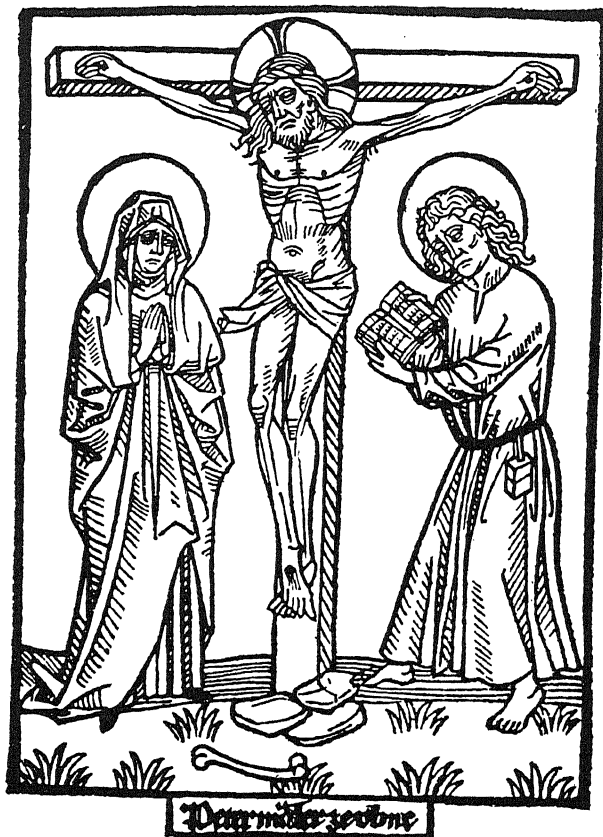
the Passion, signed Peter mähler ze Ulme. One shows *Jesus in the Garden of Gethsemane* and the other *Christ with the Cross*. In the Germanic museum at Nuremberg the *Divine Child with the Globe* is signed "Clar wunschet uch Hans Zainer zum guten



PETER MÄLER ZE ULM
 Jesus in the Garden of Gethsemane
 (Woodcut, Munich Print Room)

Jahr" (New Year's greetings from Hans Zainer). In the former Boerner collection *The Three Magi* (Schreiber, no. 99) is signed Hans Schlaffer von Ulm. The *Madonna and four Saints* (Saint Catherine, Saint Martha, Saint Dorothea, Saint Barbara) is

signed on the back Jorg Glockendon. *Saint Christopher and Saint Anthony* of the Stuttgart library is signed Ludwig mähler ze Ulm. But these examples are rare, and if these prints cannot



PETER MÄLER ZE ULM
The Crucifixion
(Munich Print Room)

be described by the name of a master characterized by this or that particularity, nor fixed precisely as to place of origin, one must turn to other means to arrive at a systematic classification.

It has been supposed that the legends on the images cast light

on the problem, when they are written not in Latin but in Flemish, German, Dutch, or French. Some have thought that the inscriptions could indicate the place of manufacture. But here they forget that these legends were conventional patterns added after the engraving had been finished, tacked on with particular attention to the country the engraving was intended for, no matter what the subject.

The coloring of the prints does not aid precise identification. Schreiber comes forward with the idea that certain colors are peculiar to certain regions; carmine, for example, to Ulm, blue to Augsburg, brown and yellow to Cologne, silver to Nuremberg, purplish pink to Basel, violet to the Low Countries. But this rule may also be applied to prints coming from other countries, if we remember how painters imitated one another. Thus certain playing cards of the middle of the fifteenth century bear the same colors, though made in different schools; for example, the same shades of birds and flowers are found in a manuscript of Philip the Good, *Chronicle of Hainault*, in a manuscript of Livy made for the second Duke of Burgundy, in a *Book of Hours* of the Darmstadt library, and in a Saint Gall manuscript reproducing the whole series of cards done by the engraver called the Master of the playing cards.

Costume, and methods of hair dressing, furnish more valuable information. Schreiber found in the first years of the fifteenth century seven varieties of hair dressing and beard cutting. Hair is at first worn long, parted in the middle, the beard cut short.

Then the hair is cut short, falling over the ears, with smooth shaven face. Then long hair again, with beard reappearing in a round shape. Later the beard is pointed, divided in two parts, the hair parted in the middle. The hair grows longer, the beard shorter. The head takes the shape of a round ball, ornamented with short curls, a smooth shaven face once more. Long curls become fashionable again, with a smooth face. This disappearance of the beard belongs to the last years of the fourteenth cen-

tury, as is shown by a passage in the Limburg chronicle of 1380: "Da auch fing es an, das man nicht mehr Haarlocken und Zopfe trug, sondern die Heeren Ritter und Knechte trugen gekürzte Haar oder Krullen gleich wie die Konvensbrüder über die Ohren abgeschnitten." (Then they began to wear hair in curls and queues no longer, but gentlemen, knights, and servants cut their hair and curls short, just above the ears, like the monks.)

Women show no fewer changes in hair dressing in this period. First they have long curls covering their ears, then thick flat bands, then long curls once more, this time showing the ears, however. Then bands become fashionable again, in another shape, this time curled and falling to shoulders. Then the ladies adopt wavy hair that covers the ears; next they circle their face by a braid in form of a crown, with the rest of the hair free. Then comes the double plait, with ears uncovered; later the hair twisted into a knot behind.

Drawings of saints have another element beside the hair, the form of the halo and its cross. The cross is outlined now with perpendicular lines, now in diagonal lines with reinforced strokes; sometimes it is ornamented, with such devices as roses or stars. For the Christ figure the style of the hair and beard is not enough; one must look to see if the halo has a crown of thorns, if the body is surrounded by a floating cloth, though all these furnish little precise information.

What is most reliable in dating prints is the study of costume. Owing to successive changes in fashion it is possible to see in the same type of print how garments vary with the taste of the day. Changes here permit one to note just when a plate has been retouched to fit the spirit of the time of its execution. Long bell-shaped cloaks, which at first cover all from neck to foot, become shorter little by little. At first you see only the toes of the shoes, then the whole shoe, finally the legs up to the knees. The vast overcoats worn by men as well as women shrink to very short

tunics, and an edict of the Council of Salzburg in 1418 carries this curious prohibition: "als etlich frawen getragen haben und etlich frawen noch sicht tragen unzymblich lang rockch . . . und rockch die oben zwischen der schulter wol ausgeschnitten sind bis auf halben rockch und blossen leib sicht und das haar mit grossen ingeflochten wulsten." (Since certain women have worn, and some still wear, cloaks of unseemly length . . . and coats that are cut away between the sleeves down to their waist and show their naked body, and their hair twisted up into great rolls.)

We thus have long and short garments alternately, with certain slight changes of details.

Shoes are also useful documents. At first, shoes of both men and women are simple and low, then they are high and laced, then low and laced shoes change to boots, then to pointed shoes with points of varying lengths, sometimes hooked back.

Armor calls for even more detailed examination, because specialists in this field can date pieces precisely when this armor is shown accurately on the prints. They know when certain forms of helmets were worn, or armlets, or thigh armor, or shoulder pieces, or armored shoes, or bucklers, lances, axes; and they can even fix their place of origin.

With what we know at present we shall not try to place early prints geographically, for that method runs up against many objections, such as the fact that in different countries the same style is current at the same time. The best provisional method for classifying prints is the chronological order.

SECTION 4

THE OLDEST BLOCK BOOKS

The most recent investigations indicate that woodblock printing is earlier than the use of movable types. Work of this kind was done in the Far East in the ninth century, if we may rely

on a chronicle of 932 called *The Ancient History of the Five Dynasties*. This text would carry back to 883 the first efforts to cut pictures on wood blocks; but, according to what the author says, the first impressions on paper were almost illegible because the Chinese ink, diluted by the water, spread on the paper. The same thing happened with the alleged wood engravings belonging to the reign of Wen-Ti of the Soui [Sui] dynasty (593 A.D.) according to a controversial passage in an encyclopedia called *Khe-tchi-king-yuen* [*Ku-chi-ching-yuan*] (34). Many Chinese scholars class these pieces as legendary, for they are noted nowhere else, and not a specimen has come down to us. Examples found by the Pelliot and Aurel Stein and Sven Hedin expeditions are much later, but they do prove that the art was known in the Far East long before it appeared in the West.

For many years scholars have fixed the middle of the fifteenth century as the date of the oldest block prints found in Europe, and have put them down as probably coming from Germany, the Low Countries, France, and Italy. They would be contemporary with Gutenberg's first efforts. Authentic dates on the *Virgin* of 1418 and the *Saint Christopher* of 1423 do not seem sufficient proof that block printing came first. Certain scholars offered the objection that Gutenberg's invention of the printing press did not come till after the first quarter of the fifteenth century. But they forgot that impressions were possible by use of the burnisher (*frotton*), and that these prints, unquestionably the first monuments of the process, may even be vestiges of an older art. It is of course necessary to reject fables, such as the Papillon (35) anecdote telling about the first attempts at Ravenna in 1284 whence Chevalier Cunio and his sister tried to cut in wood with a knife "the valorous feats of Alexander the Great." There is nothing to justify support of such incredible stories, nor is there anything to check them by.

More credit may be given to careful examination of the details of technique, of the style, of the costumes, an effort whereby

the character of the late fourteenth century prints may be established. It is by comparing the block prints, considered as late productions, with certain graphic documents having unques-



THE CRUCIFIXION

"Protat" woodblock, about 1370

(Collection of M. Jules Protat, Mâcon)

At the left an impression from the block; at the right picture of the block itself

tionable dates—principally certain pieces of stained glass—that it is possible to fix the exact date of production, through their kinship with those works. Such a method permits setting back their appearance as far as the last quarter of the fourteenth century.

One of the oldest specimens of wood engraving was discovered some twenty years ago in Burgundy (36), at Ferté-sur-Grosne, in Saône-et-Loire, near Dijon, and is called the Protat block, from the name of its finder, a printer of Mâcon. It is a block of walnut, O^m.600 by O^m.230. Both recto and verso are worked over. It is not a mere piece of wood sculpture, but it is an engraved or molded block of wood designed for making prints on paper or cloth. That the letters are cut in reverse [readable, that is, if held up to a mirror] shows what the block was designed for; they are uncials, and may be dated 1370 or 1380. The engraving is a fragment of a *Calvary*, part of a cross with the sacred phrase VERE FILIUS DEI ERAT ISTE on a scroll; there are also a centurion and two soldiers. On the verso the Annunciation, with nothing left but the kneeling angel.

Bouchot has shown that the block was done by an artist of the fourteenth century. His conclusions, contested sometimes, are based on technical points: the inscription in uncials, the paleography, the letters cut in relief and in reverse, the place it was found in, the style, the poses of the figures, inclination of the body, simplicity of line, rather largish heads, no engraving for the shadows, the way the hair is dressed, the armor, the centurion's ostrich-plume cap, his slashed garment with large buttons, his sword, the soldier's bassinet (helmet) supported by a collar of mail, the vouge [wide bladed thrusting weapon] that recalls Swiss pieces, the steel skull cap of the archer, the padded coat, solerets (armored shoes).

Many of these blocks from which prints have been made have been destroyed. Of all that may have been cut we have nothing but their mention in certain fifteenth-century books, such as *Le Doctrinal de court* or [as it is sometimes called] *Le Doctrinal du temps présent*, by Pierre Taillevent Michault. The author imagines a visit to Virtue, who takes him to a school presided over by Truth. "The school," he says, "was full of dust, the benches worm eaten, the ceiling covered with spiders, like an uninhabited place.



CHRIST BEARING THE CROSS
Woodcut of the late 15th Century
(Albertina, Vienna; and the Edmond de Rothschild collection, Paris)

at to the first chair, near the window, near the door, and saw
ries cut and engraved, but they were so old I could make noth-
f them."

is text of the middle of the fifteenth century gives most im-
nt information about these engraved histories that adorn the
l rooms. It even speaks of pictures all smoked up with old
which seems to indicate prints on paper blackened by the
e of years, perhaps even going as far back as the end of the
eenth century.

ere is no paradox in having a date so distant, for if 1370 to
is accepted as the date of the Protat block, it is fair to consider
ntemporary all pieces with the same costumes, the same styles,
ame technical particulars. One wood block print perhaps
oaches this ancestor of wood engraving with which it has note-
hy kinship. It represents *Christ bearing the Cross*, and is
rn in but two specimens, one in the Albertina (37) at Vienna
he other in Baron Edmond de Rothschild's collection.

ie composition shows Jesus carrying the Cross on his left shoul-
nd supporting it with his right hand. His hair is long, sup-
ed by a band that serves as a pleated crown. The head, with
o, lacks the crown of thorns. He is clad in a long robe with
us folds that remind one of those seen in the stained glass of
atter thirteenth century. At the right, Simon the Cyrenean,
a round cap, helps bear the cross. On the left, a soldier with
on hat of the Montauban type leads Jesus by a rope tied to his
His coat, like that of the two soldiers at his right, is slashed and
ed with scallops; the rondelles (round metal disks) at elbow
houlder, the gauntlets and bassinets (helmets), the iron plates
ie legs and the armored shoes, all are identical with those on
'rotat wood block. There is also at the left the ostrich plume
ie chief executioner as on the centurion in the Calvary print.
soldiers at the right. helmets with protecting hood of chain

The resemblance between the paper print and the walnut block considered as the older justifies the conclusion that there may have been prints at a much earlier period than we have thought up to now (38).

Two other prints showing *Christ bearing the Cross* (Bouchot, 25 and 26; Lemoisne, III and VII) in the print room in the Bibliothèque Nationale, Paris, have the same character; one in particular showing Simon the Cyrenean, with a flat cap, supporting the cross with his two hands, seems like a reduced replica of the larger print (39).

Among the wood engravings cut in the same fashion as the Protat block may be cited *Christ before Herod* in the British Museum. As in the Protat piece the soldiers wear the helmet with protecting hood of chain mail and the slashed doublet; and there is no cutting of the shadows.

One of the best block prints of this same period is the *Agony in the Garden* in the Bibliothèque Nationale, Paris (Bouchot 9, Lemoisne V). The subject of this print is treated in the left circumference of the choir of Notre Dame at Paris. The head of Christ is also found in stained glass at Saint Germain l'Auxerrois. The Bibliothèque Nationale print has been credited to a certain "Master of the Loops" (Maître aux Boucles), who has a characteristic way of showing folds of garments, which is not, however, sufficiently distinctive. The fact that this print was found near Lyons by Hennin in 1839, pasted on the cover of a book, is no proof that it was done there. Absence of engraving of the shadows, the fact that the hair of Christ and the three Apostles is in strands like that of the knights of the later fourteenth century, these indicate that this was done at the same period. The undulating folds of the garments, the halo with a cross, the two trees on the right in a single cluster, the wattled hurdle enclosure in the form of eights in the foreground, with a small plank, are not enough to fix its date precisely. The ink, and the grays, yellows, and browns applied by



CHRIST BEFORE HEROD
Woodcut, late 15th Century
(British Museum)

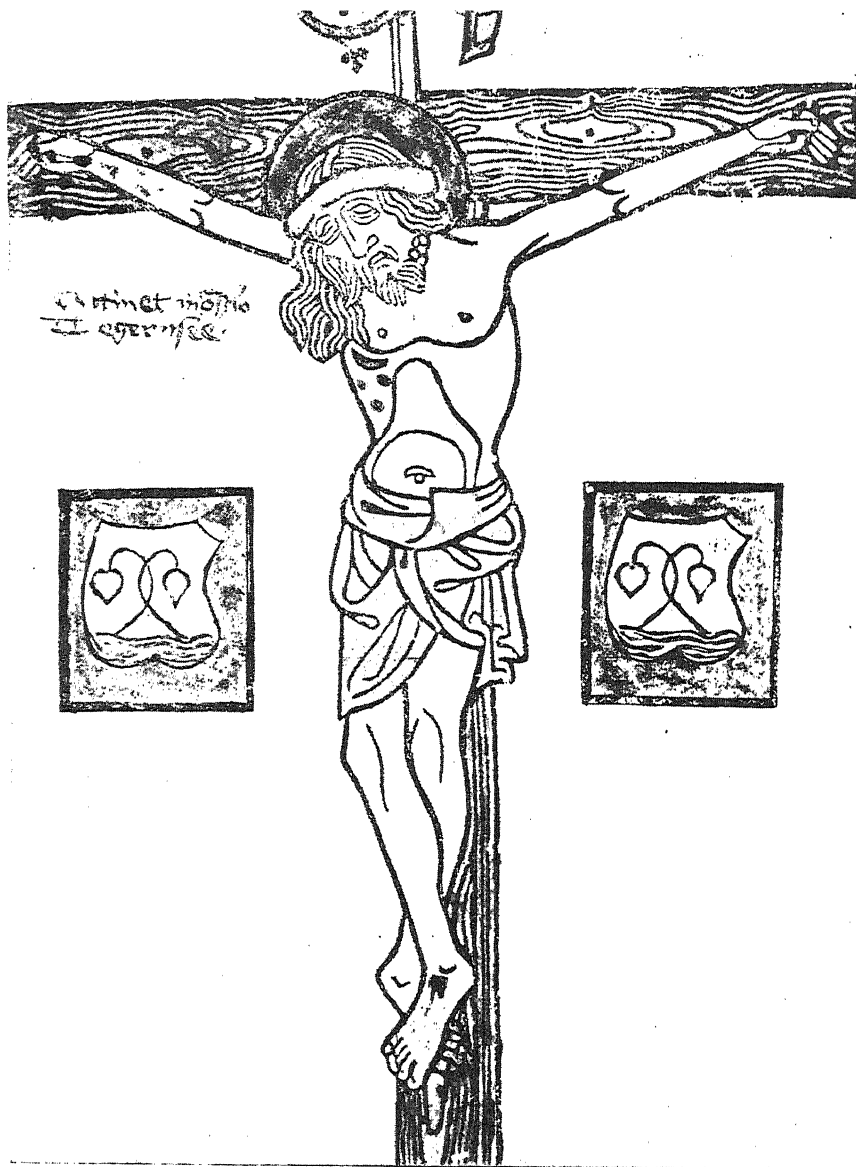
the *frotton* are even less an indication of the place of origin. What is certain is that because of the skill of composition and the authenticity of poses this print is properly regarded as one of the finest specimens of primitive block printing. Imitation of it is seen in a tapestry of the fifteenth century in the Czartoryski museum at Gołuchów and in a fresco of the same period in the Rudolphinum at Prague.

Very different is the *Crowned Virgin Standing*, the so-called *Lyons Virgin*, found at Lyons by Hennin. Passavant and Bouchot (Bouchot no. 64, Lemoisne IV) have dated it as at the end of the fourteenth century. Notwithstanding Schreiber, who would make it later, it is akin to many pieces of fourteenth century work. Bouchot found it on the coat of arms of King Arthur in the *Nine Worthies* series in the Bibliothèque Nationale, Paris (French manuscripts 4985). The piece of Gothic art where this occurs would seem to belong to Notre Dame of Puy-en-Velay; there the head would seem to bear a crown, with *fleur de lis* of Jeanne de Bourbon. That Virgin Standing, holding close the infant Jesus, has a halo over her head, of the same type as that of the *Altarcloth of Narbonne* in the Louvre.

Set beside these wood prints is a series showing the life of Christ, of the Virgin and the Saints; these indicate a rather archaic period in certain details of technique, of hair dressing, and of costume. There is a *Christ Crucified* of the Bibliothèque Nationale (Bouchot 45, Lemoisne I) and a group of three wood engravings representing *The Holy Trinity* (Schreiber 736), the *Virgin* (Schreiber 1114), and *Saint Wolfgang* (Schreiber 1733), found by Wolfskron in an Olmutz missal in the library of the church of Saint James at Brunn (40). This manuscript was bequeathed by Deacon Nicholas Johann, and ought to be dated about 1345, the time of his death, as shown by an inscription on the first leaf "anno ab incarnatione domini millesimo quadringentesimo tricesimo quinto" (1435). According to Wolfskron there is no doubt that the two leaves on



JESUS IN THE GARDEN OF GETHSEMANE
Woodcut, late 14th Century
(Bibliothèque Nationale, Paris)



THE CRUCIFIXION
German woodcut, beginning of the 15th Century
(Munich Print Room)



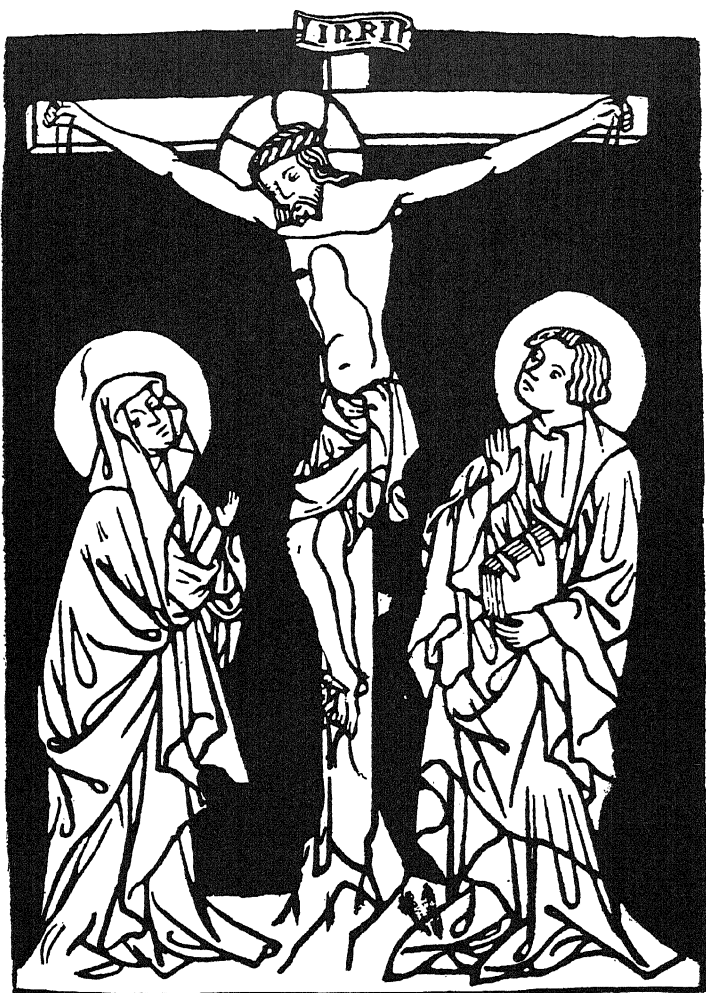
THE CRUCIFIXION
Anonymous woodcut, beginning of 15th Century
(Munich Print Room)

which these three prints are found are part of the original binding. He feels they cannot be later than 1435 and perhaps may be even as early as the end of the fourteenth century. Finding these prints on the binding of manuscripts is nothing surprising, for they were frequently put in such places to be sure of preservation. The Munich library has a *Saint Dorothea* (Schreiber 1395) and a *Saint Sebastian* (Schreiber 1677) that were found pasted in the cover of a 1410 manuscript in the San Zeno monastery in the Tyrol.

The dates of these two manuscripts prove that block prints are much earlier than the middle of the fifteenth century, contrary to the still common opinion. It is the costume characteristic of the beginning of the fourteenth century that proves this. Thus, in a *Calvary* (Schreiber 471) of the Munich library Christ is surrounded by Jews with pointed hats, one of them wearing a cod-piece. The same garment is found on one of the figures in a *Resurrection* (Schreiber 539) of the Nuremberg museum. A short tunic, with narrow sleeves, falling only to the knees, gives a date of about 1425 for a Saint Christopher in the Berlin print room (Schreiber 1357). The helmet of a warrior, the ermine lined cloak of a knight fix the same date for a *Martyrdom of Saint John the Baptist* in the Germanic museum at Nuremberg. The hair dressing and beard of *Saint Christopher* (Schreiber 1352) of the Berlin museum and that of Christ in the *Calvary* of Munich (Schreiber 389) justify the same hypothesis. A cap with a long top knot is the reason for placing in the same period a *Saint Jerome* in the Berlin museum.

Architectural and decorative motifs are no less significant. A gothic frame in *The Good Shepherd* of the Breslau library (Schreiber 838) points to the middle of the fifteenth century, while a background of tapestries, formed of lines cut horizontally, permits putting the *Crucified Christ* of the Berlin print room in the year 1425 (Schreiber 400).

These methods would permit one to retrace the principal stages of primitive wood engraving. It would be too long to take them up



THE CRUCIFIXION

Anonymous woodcut, beginning of 15th Century
(Munich Print Room)

one by one. What should be done is to note particularly those that have more of an artistic value than documentary, and to salvage from oblivion the beautiful specimens of the Italian school such as the *Crucifixion* in the Prado and the *Martyrdom of Saint Sebastian* in the Ravenna library (41).

Among these one of the best color prints is *Saint Benignus* (Bouchot 87, Lemoisne II), long called *Saint Cassianus* and recently suggested by M. Delen as possibly *Saint Quentin*. It would seem best to agree with Bouchot, Courboin, and M. Lemoisne in calling it *Saint Benignus*. He stands erect, his two palms held up, showing the fingers pierced with awls. It is Saint Benignus of Dijon who, in the roll of saints, thus suffered martyrdom. Many of his pictures confirm this, such as the statuettes in the Dijon and Clermont museums, a miniature of the *Rationale des divers offices* (Bibliothèque Nationale, French manuscripts 437, folio 50), another of 1438 on a *Rouleau des morts* in the abbey of Saint Benignus of Dijon in the Troyes library.

The one hypothesis that must be rejected is the attribution of this print to the Master of the Loops, because draperies with curled folds are not confined to him, as we have shown.

Fixing the date of the Vienna *Flight into Egypt* (Schreiber 637) is difficult. The Virgin, crowned, sits on a bench, nursing the Child unclad. At the right Joseph prepares some kind of pap; an angel hovers in the heavens. This curious piece was greatly admired by Schreiber who dated it as of the end of the fourteenth century, or early fifteenth at the latest. He felt it was inspired by an Italian model. But a similar setting is found in French manuscript 166 of the Bibliothèque Nationale, Paris; and there is also a similar likeness of Saint Joseph in the Duc de Berry *Hours* of the same collection (French manuscripts 18014, folio 143, recto). As for the picturesque cap of Saint Joseph it recurs in Manuscripts 5057 and 5058 of the Arsenal Library in Paris. M. Lehrs feels this *Flight into Egypt* ought to be put in the group of German prints (42).



THE FLIGHT INTO EGYPT
Colored woodcut, late 14th Century
(Albertina, Vienna)

Two other curious prints in the Munich collection of etchings and drawings have given rise to much controversy. One is *Death of Mary* (Schreiber 709). M. Gusman finds in it trace of Italian influence. He feels that its idea is found at Ravenna in a fresco of Giovanni Pietro di Rimini. The form of the bed on which the Virgin lies stretched out reminds Bouchot of the frescoes of Santa Croce at Florence and a miniature in a Petrarch (Latin manuscripts, 8500 of the Bibliothèque Nationale at Paris, folio 54, verso).

The other is the *Crowning of the Virgin* (Schreiber 729). The two figures with halos that hold the crown over the Virgin's head resemble Saint Benignus. They have the same cut of hair and beard. There is a *Crowning of the Virgin* quite similar in the Bibliothèque Nationale (French manuscripts, 166, folio 11).

A *Christ in the Wine-Press* (Germanic Museum at Nuremberg, Schreiber 841) would even date back to the middle of the fourteenth century according to M. Glaser (43), based on comparison with an impression on cloth made at Basel about the same time.

A *Saint Dorothy* called *Saint Opportuna* in the Munich library (Schreiber 1394) raises certain iconographic problems. It has been likened to the miniatures in Latin manuscript 8500 in the Bibliothèque Nationale, Paris, where an allegory of Rhetoric presents the same starred background and the same pedestal.

Another *Saint Dorothy* (Schreiber 1391) with a diapered background may be placed in the same school.

A *Saint Sebastian* in the Munich library (Schreiber 1677) shows a cocked hat, which is found also in a figure representing a prophet in French manuscript 18014 (folio 4) in the Bibliothèque Nationale, Paris.

The *Flagellation of Christ* (Bouchot 15, Lemoisne VI) offers a curious example of a tunic with buttons. To the right of Christ, who has his two arms tied to a column and whose face is surrounded by a halo with a cross, is an executioner clad in a coat



THE VIRGIN CROWNED
Woodcut, end of the 14th Century
(Bayerische Staatsbibliothek, Munich)

ornamented with large buttons recalling those of the centurion in the Protat block. These buttons are excessively large, a very common fashion at the end of the fourteenth century. Identical buttons are found on a tunic of Jean de Vaudétar offering a book to Charles V in a French miniature preserved in the Museum Meermano-Westreenianum at The Hague and reproduced in the Roger de Gaignière catalogue (no. 338). The executioner to the left wears also a coat with the same enormous buttons. Many documents of the period furnish examples of those large buttons, such as the ivories of the Spitzer collection and the French manuscript 167 of the Bibliothèque Nationale.

Most of these primitive wood engravings are described, if not reproduced, in different works, particularly in the Schreiber catalogue; all these tools must be used with caution. They are very useful books, carefully compiled for print collectors, but sometimes lacking in the critical approach. It is in this way that classification of wood block prints by subjects (Old Testament, New Testament, saints, mythological, historical and profane compositions) makes no difference between the original print, the oldest, and replicas and later issues. Most of them are credited to Germany, with no satisfactory proof, no place being provided for the Low Countries, for France, or Italy. Their resemblance to miniatures in manuscripts, to tombstone plates, is not realized; sometimes even certain frauds are not uncovered. No mention is made of the way they are faked by means of stamps or marks added afterwards.

Another difficulty is the confusion of certain wood engravings with those done from metal in relief. Thus a *Saint Bernard* of the abbey of Clairvaux is looked on as a wood engraving, while it actually seems to have been drawn from metal cut in relief. Inversely, *Christ before Herod* in the British Museum was thought to be printed from copper, though it seems to have been printed on wood. What makes one hesitate often is the nature of the oily black ink and the applying to paper of a method of impression (44) described by Cennino Cennini (45).



THE CRUCIFIXION

Anonymous woodcut, middle of 15th Century
(Munich Print Room)

It is thus seen that the wood engraver turned over to a wood cutter or to a skilled workman the task of cutting away with a gouging chisel (burin) the hollowed parts that were to give no impression. The wood thus cut away was weakened, and permitted only a limited number of prints to be run off, and the press tended to wear it away eventually. Hence the idea of substituting metal for the wood, worked in relief in the same way the wood was done. MM. Gusman (46) and Lieure (47) have written abundant information about this process, but both concede that it is not always easy to recognize it, and that they do not know either the date or the place it was first used.

Two other precautions to take in scientific examination of block prints relate to the place where they are found and the watermarks of their paper.

The place where a print has been found is no certain indication where it was made. Pictures in the fourteenth and fifteenth centuries were not designed solely to be hung on the walls as decorations, a use demonstrated by the charming *Annunciation* of the Master of Mérode (47a) in the Brussels museum. They had a miracle working power; they served to protect their owner from sickness. People stitched them to their clothing, pasted them to the covers of their books, to their wooden or iron boxes. It does not follow that they were made in the places where they were found. The only safe conclusion is that one of these charms, intended for wide circulation particularly among pilgrims, has been able to end up here at a given moment.

Watermarks show nothing but the mill where the paper was made, and are of little value in telling where the print was made. The paper passed from one country to another, and the fact that a sheet might have an Italian watermark is no reason for saying that the print was necessarily made in Italy. The paper might have been sold to a German or French print maker's shop, for example.

It becomes necessary to distrust a quantity of doubtful block books, reproductions of authentic fifteenth century prints, done on old paper to give the impression of originals. Schreiber notes more than a hundred under the heading of "Impostures." In this group is a portrait of Dædalus, dated 1309, of the Musée des Offices, of Florence, done by a Turin antiquarian. The Berlin print room has two other falsifications of the same type, of the eighteenth century: a portrait of Peter Schlosing, physician, dated 1384, and a likeness of Hans Wurm, dated 1423.

Another list of similar frauds might be added to Schreiber's record, including an imitation of a primitive woodcut contained in an allegory on the Four Elements, in the Bibliothèque Nationale, Paris.

It is wise also to scrutinize with care texts, often apocryphal, mentioning artists who never existed.

We thus had occasion to call attention to a so-called Flemish school of the fourteenth century, which included distorted names of fifteenth century artists. To establish this group of engravers the author of the fraud quoted a verse from a poet taken from a text published after his death, and he rounded out his achievement by falling back on a manuscript that was easily proven a forgery (48). Many critics unfortunately let themselves be deceived.

Other obstacles make difficult the publication of a systematic "corpus" of primitive block books. But it would certainly be desirable, parallel with their arrangement by subject, to group them by dates and, if possible, by classes founded on common characteristics of style, of composition, of technique. Such a catalogue would permit following the development of the woodcut to the fifteenth century, according to the principal periods and schools. It would cast a new light on the history of the first books with text and illustrations cut on wood, the so-called block book incunabula, in which some (49) have thought they saw, but with no proof, the beginnings of printing.

SECTION 5

BLOCK BOOK INCUNABULA

CHARACTERISTICS OF BLOCK BOOKS

The technical methods of wood engraving were not confined to single prints, but were extended also to books. They tried to offer a substitute for illuminated manuscripts, the outer appearance of which they preserved. One of the differences between the new and the old was the use of paper instead of vellum, as costing less ; also in the use of a new method of impression that permitted producing many copies. In trying to spread these publications, their greatest interest being in the illustrations, the Church could set its doctrines and its ethics in a visible manner before the illiterate. The preface of the *Ars moriendi* alludes to this need of appealing to the eyes of the public : To make this matter useful to the world, we read, it is here set forth before the eyes of all, both in writing which serves the clergy alone, and in pictures which serve both the clergy and laymen.

These block books comprise subjects engraved on wood, and a text that sometimes is manuscript (chirographic) or sometimes engraved. They are made up of a series of prints, with a rather long text, the whole making a book. They mark the first step toward the discovery of printed books, with which they were rivals for some time.

In place of books printed from movable type with text on both sides of the sheet and with pages succeeding one another with no blank spaces (opisthographic, that is to say), they got their impression on but one side and were called anopisthographic. All the lines of the picture and the text engraved in relief ran the risk of showing through on the verso, a decided defect. Heavy rubbing when taking the impression might make the picture on the recto confused.

With single prints there was no difficulty in leaving the verso blank, but a book called for some means of using the two sides. The system found by the "librarius" (book maker or publisher) consisted in fastening the blank verso of each sheet to the recto of the following. Thus, notwithstanding the pressure exerted by the rubber or burnisher (*frotton*), no traces of impression showed on the reverse of the sheet thus pasted. The blank pages were fastened back to back as with Chinese and Japanese albums.

The ink used was a mixture of water, lampblack, and boiled starch. It was not black, but gray, brown, or tawny, and it lacked body. Later, when the level press replaced the burnisher (*frotton*), a fatty ink was used, which was glossier and blacker, with more body than the ink made from water.

Block books were generally the size of our small quartos, about 25 cm. by 20 cm., these dimensions varying slightly. The picture, the essential element, is simple enough, nothing more than a line drawing to be colored by hand or by a stencil. There was no effort to rival the miniature in richness of decoration and variety of color. The miniature was intended for the nobility. These picture books were intended, according to the prologue of the *Speculum humane salvationis*, first for the poorer clerics, who could not afford to buy the illuminated manuscripts. They were cheap productions of a popular character.

The edifying texts accompanying the pictures were at first not printed. By using a mechanical process to reproduce a manuscript text the picture makers would have run the danger of going beyond their professional rights. They would have set up unfair competition with the copyists, and would have encroached on copyist privileges. The severe gild rules forbade anything like that. With radically opposed interests in the beginning there was one means of reconciling them, namely the manufacture of the so-called xylochirographic or chiro-xylographic pictures (engraved design and manuscript text). Little by little the copyists became reconciled to

simultaneous engraving of text and picture. That moment marked the birth of the block book.

The artistic qualities of these incunabula have often been praised, and people have tried to identify the authors of these simple but vibrant compositions. It is more difficult to settle where they were made, for the place where they are found is no indication of place of manufacture.

It is equally hard to fix the dates of publication. Schreiber and Lehrs maintain that there were no block books before the second half of the fifteenth century. That opinion is general. Didot, Dutuit, and Bouchot believe they may have been issued a good while earlier. So too M. Mortet (50). This is based on the analogy between the block book and the miniatures, stained glass, paintings, tapestry of the period. That alone is not proof enough, for it is perfectly possible that the pictures inspired the others. Arguments from costume, the character of the engraver's cutting, the legends, the watermarks, the ink are merely presumptions, but they certainly are worthy of suggestion.

The text of the letter press has by some been given a prominent place. If it is in Latin we learn nothing as to where it was made.

Indeed, some students assert that most of these primitives were made in Benedictine monasteries, with text added later written in the language of the country where they were to be sold. To "dress" these legends according to localities the point is made that the engraving was not always done on the same wood, but rather on different kinds that were at hand when the time came for cutting. It was thus with inserted borders, of which traces are visible. Purely hypothetical. It is equally safe to say that they were produced simultaneously in Germany, the Low Countries, and France.

They were immensely successful, and ran through many editions. The most popular were the *Apocalypse*, *Biblia pauperum* (Poor man's Bible), *Ars moriendi* (Art of dying), *Speculum humanae salvationis* (Mirror of Human Salvation), and the *Song of Songs*.



Ars Moriendi
Block Book
(Comte de Waziers Collection)

The *Ars moriendi* ran to thirteen editions (51). One of the handsomest is the first, with French text, called *L'Art au morier*.

Four leaves of this text were found in a manuscript of 1417 (Bibliothèque Nationale, Paris, Print Room, Ed. 5, Rés. 11). These pictures are taken from a small folio of 24 leaves, the *Art au morier*, printed on one side of the paper, about 1470, which belonged sometime to Van der Cruise de Waziers, and now is part of the Count Waziers' collection.

This book was shown at the exhibition of 1874 for the benefit of Alsace-Lorraine; again at the retrospective exhibition of the Trocadero in 1878, and at the Bibliothèque Sainte-Geneviève in May-June, 1922.

Brunet, the first to make this edition known, describes it as the earliest block book with engraved pictures (52). He believes these prints are those Heineken described as the second edition of the *Ars moriendi* (53).

These show, not the equality of all men before death as in the *Dance of Death*, but rather the means of preparing oneself for triumphant resistance to various temptations, for which the author prepares a striking picture. Brunet has no hesitation in considering it as the oldest specimen of block printing, relying on the text.

The preface begins "Ja soit que selon le philosophe" (I know that according to the philosopher); the last page ends with "Bien vtile cōclusion de ceste salutare doct'ne si le moritur labourant en agonye et extremite peult parler" (A decidedly useful conclusion of that salutary doctrine if he who dies in agony at the last moment could speak). This is the only copy known, and has been described by Guichard (54), Schreiber (55), and Dutuit (56).

M. Mâle pays less attention to text than to illustration. He shows that *Ars moriendi* is the work of a priest or a preacher influenced by one of Gerson's minor tracts (*Opusculum tripartitum*) which the bishops of France, in one of their synods, had adopted for the education of the clergy. The book can not be dated later than 1409, and it contains the *Ars moriendi*, the title taken later by the author

of the block book collection. He even takes one of his phrases from Gerson, who wrote, apropos of the advice frequently given to the parents of a person at death's door urging them to speak to him freely about death: "saepe per falsam consolationem et fictam sanitatis confidentiam homo incurrit certam damnationem" (often by false consolation and fictitious confidence in health man attains certain damnation). And the author of *Ars moriendi* reminds his reader "saepe namque per unam talem consolationem et incertam sanitatis corporeae confidentiam certam incurrit homo damnationem" (for often through such a consolation and unreliable confidence in bodily health man attains certain condemnation). M. Mâle adds that the wood engravings that have assured the success of this work are of great interest for the history of art, because they are the oldest we know, from the point of view of number of scenes represented (57).

According to M. Lehrs (58) these wood engravings are copies of prints from the famous German, the Master E. S., about 1466. This is accepted by Mr. Cust (59), but Schmarzow (60) and M. Delen (61) oppose it vigorously, the latter ascribing the prints to Roger van der Weyden.

Older than the pictures in the *Ars moriendi* would be the illustrations in the block book *Apocalypse*, according to Bouchot. He places them as far back as the latter years of the fourteenth century, which seems a bit early to us, as they would belong rather to the fifteenth century. In fact the style is similar to tapestries of the cathedral of Angers made about 1380 by Nicolas Bataille, after the drawings of Jean de Bandol, called Hennequin, of Bruges, working at the court of Burgundy. It was this artist himself who had been told by Charles V to follow the spirit of the vision of Saint John as set forth in an old manuscript. It is this manuscript, of the Cambrai library (no. 422), with its pictures so closely agreeing with the compositions of the Angers tapestry, that was displayed in the Exposition of the Book at the Musée des Arts Décoratifs in 1923.

Beside this manuscript there are others of which the common type, usual in the north of France from the twelfth century, might have been able to serve as a model for the illuminators, the tapestry makers, the wood engravers. According to MM. Delisle and Meyer [62] the block book editions of the *Apocalypse* do not come from the manuscript of Charles V but from another, similar to those of the group represented by three manuscripts of the *Apocalypse*, one at the Bodleian in Oxford, a second in Count Crawford's library, the third owned by Vicomte Blin de Bourdon. These may themselves perhaps be replicas or copies of a lost original.

That was the opinion of Didot who felt that the belief in the existence of a model common both to the miniatures and to the block books rests on the unity of composition and on certain very characteristic details. Thus, more than a century apart, in the manuscripts as in the books, certain subjects have been transposed in identical manner. The order of the text is reversed, and that striking circumstance could be due to nothing but a similar change in the original. For instance, the picture showing Satan precipitated into the bowels of the earth must come before the proclamation of his reign as it does in the narrative.

It would take too much time to discuss here the question of the origin of the *Apocalypse*, something that would carry us back to the Greeks and Byzantines. We can not stop to classify all the block book editions of the *Apocalypse*, from Heineken down to Sotheby, Dutuit, and Schreiber. The analysis by these authorities, without being upset, furnishes no very convincing arguments and does not abound in sure and certain conclusions. Whether the style may be that of Flanders, the Netherlands, or Germany there is one outstanding fact in one of the editions that seems the earliest (Bibliothèque Nationale, Paris, block books, 14) ; namely the character of costumes and armor.

Bouchot (63) has well shown that in the plate showing the mur-

der of Enoch and Elijah by order of Antichrist the characters wear a doublet with great round buttons, similar to those on the centurion in the Protat block. These buttons are found in the surcoat of the warriors of the Angels of the Euphrates. The men at arms



Block Book *Apocalypse*

The Angels of the Euphrates (*Revelation*, ix, 14)

(Bibliothèque Nationale, Paris)

have likewise the same bassinets (helmets), the same knee pieces, the same breast plates, the same *solerets*. In a plate showing one of the soldiers striking with a battle axe appears the skull plate with acute apical point identical with that of the Protat block. The head dressing of the woman, the Great Prostitute seated on the Seven Headed Beast, shows two tresses of hair of the fashion belonging to French women, particularly to Queen Jean de Bourbon, wife of Charles V. The Antichrist has a soft felt hat quite similar to that of the centurion of the Protat block.

The *Apocalypse* must have been done at a date earlier than

hitherto fixed. In place of the middle of the fifteenth century, the first edition should be dated some years earlier.

In the later editions certain archaic details have been modified and modernized, principally costumes and architecture. It is preferable to study the variations in armor, clothing, straight and pointed stockings, short jacks, the bonnets, rather than the form of the letters of the accompanying text. It would be of great interest to succeed in identifying the artist who drew the designs, and in fixing the time when he lived. What Bouchot said about the plate representing the Great Prostitute in the *Apocalypse* may be repeated for many other pictures. Among the 48 pages comprising that collection with pictures at the top and bottom of the page there are some in particular where the knights or warriors appear clad in armor. In the scene showing the "Fight of the Beast and the Kings of the Earth against the Son of Man" there is a particular shape to casques that is not found in the primitive manuscript. In "Striking the First Blow" the form of hats is very characteristic. The "Adoration of the Beast" likewise shows saints, or more particularly warriors, whose helmets may be dated precisely. Saint Michael, the archangel, and the dragon have brassards, gauntlets, leg pieces, shields that mark an epoch. In the "Threats to those Adoring the Beast" the hair dressing, the boots, and the sword of the executioner are very significant. The "Temple of God" with its arch and its tower with embattlements shows a pointed arch style of a date that agrees with that of the executioner's costumes.

The *Biblia pauperum*, according to Renouvier (64), shows costumes of the type we know belonged to the court of Burgundy during the first half of the fifteenth century. He observes that the women have their hair done up in hennin (high, or conical style) or in a round pad, doubtless thinking of the third plate of the first edition, the Queen of Sheba. One of the women here is noteworthy by her hair done up in a high pad. But that method, called *escoffion*, appeared also in the last years of the fourteenth century. In



Biblia Pauperum

Block Book

Eve and the Serpent. The Annunciation. Gideon and the Fleece.
 (Musée Condé, Chantilly)

another plate a man is capped with a sort of hood frequent under Charles VI and Charles VII and even earlier (65).

Compare the plates of that block book with the designs of the thirteenth and fourteenth century manuscript, and common origin is striking. Composition, style, the bearing of the personages in the block book recall the same subjects in two very curious manuscripts, one at Paris, the other in the Vienna library (66).

A critical classification of the different editions, based on the technical details and peculiarities of costumes, permits one to see that the first harks back to the works of the miniaturists.

If you take the first plate of what is considered the first edition, showing the Annunciation in the center, Eve and the Serpent at the left, Gideon and the Tortoise at the right, you find curious details in the Gideon. He, kneeling, wears a bassinet (helmet) with movable visor, pivoted to his temples by means of pins or bolts, as at the end of the fourteenth century. He wears a surcoat, brassards, thigh pieces, leg pieces, knee caps, which recall those of the *Roman de Lancelot* in the Arsenal at Paris. The armor is quite similar to that of the Protat block.

There is a group of ten editions derived from the same source, but no one has succeeded in identifying the original. That it was illuminated seems safe to admit, but so far we have not been able to prove absolutely what served as the model. These different copies of the first group comprise forty anopisthographic leaves (printed on one side only) printed with a burnisher in a bistre tone. An edition with fifty leaves makes up the second group.

These block books have hitherto been classified by arranging them according to a certain number of slight details such as the number of tufts in the herbs, roots in the trees, heads in the stud nails, pebbles, points or strokes or hatchings in the leaves, shadows on the columns and staffs, variation of ornaments in form of triangle above the two columns that divide the principal subject of the two side compositions. Attention has been given also to differ-

ences of impression, whether by burnisher or press, but all these variations furnish less instructive information than the study of costume and architecture.

From this point of view the examination of different copies of the *Biblia pauperum* helps the search for the edition that may be considered the original (67). It is enough to compare, for instance, plate III of the forty leaf issue with plate VIII of the fifty leaf issue. This triptych shows the Adoration of the Magi in the centre, Abner and David on the left, the Queen of Sheba on the right. In the first group David's hat is shaped like a tulip; in the second it is round. The two persons at his right wear, one a turban in place of a felt hat, the other a bonnet in place of a hat. The style of the church in the background is not the same in the two editions. In the centre the Virgin wears a hat in one, has her head bare in the other. The Magi in the second group wear turbans. A soldier, erect, to the right, holds a sword; this is an addition. The costume of the Queen of Sheba and of Solomon has been changed; her dress has an open collar, and an alms bag hangs from the belt around her waist. One of her maids in attendance has her hair done up in a hennin (high, conical style).

These same remarks may be made about many other plates. Take, for example, the triptych of plate XVI of the first group; this shows Judas in the centre turning to the priest, at the left Joseph's brothers sending a messenger to him, Absalom at the right stirring the populace against his father. The doublet, shoes, hat of the messenger show changes corresponding to changes in fashion according to the date of execution of the pictures.

Similar comment may be made about *Oraison dominicale* or *Exercitium super Pater Noster*, a block book of ten leaves showing a Prologue, Prayer to God, Glorification of God, Reign of God, Submission to God's Will, Physical Pain and Spiritual Pain, Remission of Sins, Temptations, Hell, Paradise. Kristeller (68), who edited this incunabulum according to the various issues, concludes

that artists usually drew their characters in the costume of their time, and that it is necessary to look at these costumes, even in a reproduction, as the most certain indication of the time the work was executed.

The Temptations plate shows three women seated at a well-furnished table in company of a clergyman, the arrangement of their hair and their costume different in the two editions, something that permits the original to be distinguished from the copy. The one with a crown symbolizes Pride and Vanity; the other with a plate Carnal Temptation by Gormandizing and Luxury; the third, with a bag of silver, Worldly Temptation by Curiosity and Avarice. In the first edition the three all wear hats of great finery in form of helmet visors.

According to Bouchot (69) the artist took as a model for Avarice the concubine of Duke Philip the Good and mother of the Grand Bastard, Jeanne de Presles. Some years later in the second edition the same women wear hennins and *truffauds*. Their hair is ornamented with a pad like a loaf of bread split open, and a veil falling to the rear. Instead of having a gown with an open collar they are clad in a *cotehardie* (a close-fitting tunic) with a triangular opening in front. One curious fact in this accommodation of costume to the taste of the new generation is that one of the women, instead of crowning a backsliding brother with the band encircling a knight's helmet as in the first edition, contents herself in the second with aimlessly holding that object in her hand, as if the copyist had not understood a discontinued fashion.

Plate V reveals changes in costume no less interesting. In the first edition two men are clad in greatcoats common at the end of the fourteenth and the beginning of the fifteenth century. In the second the greatcoats have become closely fitting jackets and the footwear shows shoes with long pointed toes.

It has been held that the second edition of the *Exercitium super Pater Noster* has pictures identical with those of Manuscript 12070

of the Brussels Royal Library, the *Spirituale Pomerium*. This manuscript, dated 1440, was long considered the original by Alvin, Holtrop, Acquoy, Hessels, and even recently by M. van Bastelaer (70). That date was contested by Schreiber and Kristeller, and their theory was confirmed by Auguste Vincent (71). He showed



Song of Songs
Block Book
(Bibliothèque Nationale, Paris)

how the text of the manuscript, corresponding so poorly with the engravings, could only be a copy. According to him the engravings would be earlier than the manuscript.

Even if the questions as to its date are now cleared up, the place of production of this incunabulum remains still unsettled. It is the same as the *Canticum canticorum* or *Historia Beatae Mariae Virginis*. This latter, because of its great artistic merit, has been credited to Germany by Heineken, to the Netherlands by Ottley, to the author of the *Gothic alphabet* of 1464 by Passavant. But study



C'est quant saint servas fut mie honorablement Keen a
 Kien et ly celebrat en la chapel saint marie ly fur
 remoli quant le pays de tout front de servir des
 huyus leur fist par pour s'ellon aller impetrer
 d'ont a romme de leurs peres

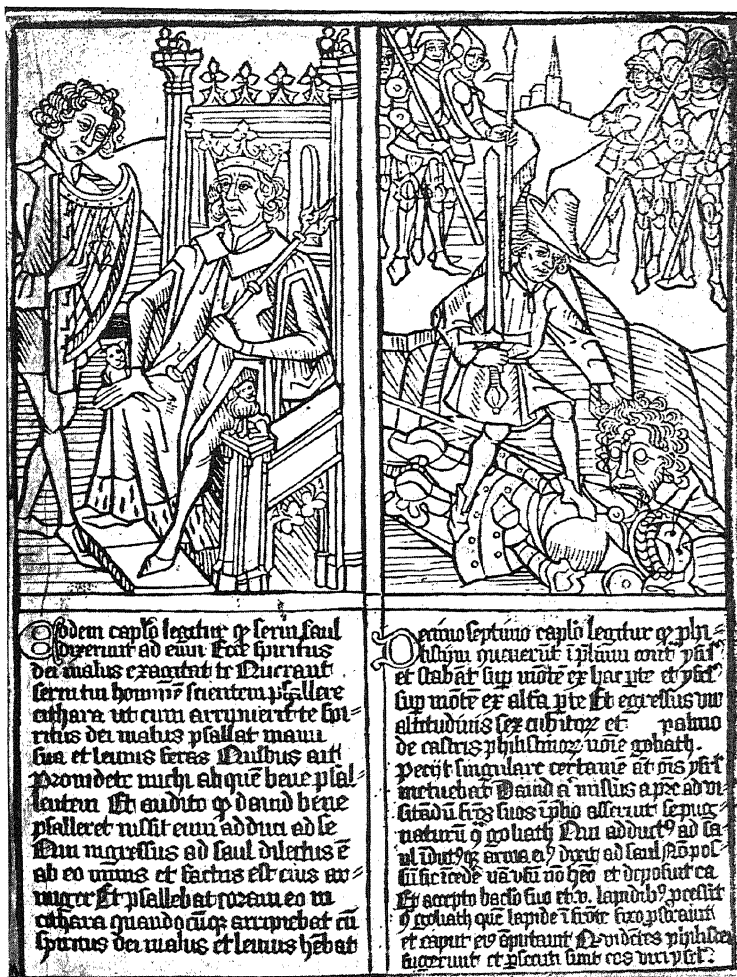
LIFE OF SAINT SERVATUS
 Block Book
 (Bibliothèque Nationale, Brussels)

of the costumes of the figures ornamenting the nine leaves of that collection shows that the women wear pleated dresses, and their upper garment shows large armholes sloping under the armpit, as was the fashion in the middle of the fifteenth century.

They are found also (72) in another book, the *Speculum humane salvationis*, to which M. Perdrizet has devoted a monograph (73).

The pictures in the *Speculum humane salvationis* run four to the page, two for the Old Testament, two for the New Testament. The book is a guide for preachers, of which two editions are known with Latin text and two others with Flemish text. It is the latter that, because their text is printed with movable type, led to the incorrect suggestion that Coster of Haarlem had been the inventor of printing. The book should really be dated much after that invention, some fixing it at 1471; and according to others it was printed in 1473 by Jean Valdener who went from Cologne to Louvain at that time.

The list of block book incunabula would be incomplete if mention was not made of a dozen other works issued at that time and done in the same way. First is the set of plates relative to the *Passion*, of which there is a block book edition of 48 leaves in the Vienna library, a German edition in Nuremberg, and a Latin issue in the Berlin print room. The latter has 18 pictures, with two angels above each, holding a scroll ornamented with an inscription. They were very popular, and were reproduced in Bonaventura's *Meditationi sopra la passione*, printed by Hieronymus de Sanctis and his partner Cornelio, at Venice in 1487. Two editions of the *Defensorium inviolatae perpetuaeque virginitatis Mariae* belong to the same date, their text being written by the Dominican Franciscus de Retza. The first edition, in 16 leaves, presumably about 1470, is credited to Friedrich Walther; the second, in 27 leaves, to Johannes Eysenhut of Ratisbon, about 1471. Although many of these are anonymous the authorship of *Antichristus et quindecim*



HISTORY OF DAVID

Block Book

David playing the Harp

David killing Goliath

(Musée Condé, Chantilly)

signa, a book of 38 plates, has been credited to Hans Spoerer, Nuremberg engraver of about 1479, for one plate bears the name of Jung Hans.

Among other block books the *Symbolum apostolicum* should be mentioned, consisting of 12 leaves, relating to the life of Christ, with a sentence by one of the apostles. There are three editions : one in the Vienna library, printed on vellum, about the middle of the fifteenth century ; another, larger in size, adds the busts of the prophets ; in the third the Latin text is replaced by one in German.

Beside this book stands one no less celebrated, the *Ars memorandi*, containing 30 leaves relative to the four Gospels, with pictures and symbols of the Evangelists. Like the *Seven planets* there are three editions of this also, the copies varying according to the periods shown by the costumes of the characters.

One can not in silence pass over the *Confessionale*, 16 leaves and three plates ; the *Decalogus* or collection of the ten commandments, in 10 plates, with text in a Suabian dialect ; the *Septum vitia mortalia* ; the *Septimie penalis* ornamented with 5 plates ; the *Oracula sybillina*, a series of twelve prophecies in 24 leaves, representing a sibyl on the one side and on the other the scene from the life of Christ referred to by the Prophet ; the *Salve regina*, or legend of the miracles of the Virgin, in 16 leaves, by Lienhart Wolff, printer at Ratisbon ; the *Vita Sancti Meinradi*, a collection of 64 plates devoted to Saint Meinrad, founder of the chapel at Einsiedeln ; the *Vita Sancti Servatii*, 24 plates on the life of Saint Servatius, whose relics were at Maestricht, whither a pilgrimage was organized ; the *Mirabilia urbis Romae*, a guide for pilgrims, in 184 leaves engraved under Sixtus IV, whose arms are shown. Nor should one omit the *Historia Davidis*, in 20 plates, with Latin text, about King David ; the *Historia sanctae crucis*, pamphlets on the planets, and calendars such as that of Jean de Gmund (1470).

All these books show the development of wood engraving, which instead of confining itself to single prints, set forth whole books, a rival to the printed volumes.

2

Engraving on Metal

SECTION I

INTAGLIO ENGRAVING

THE art of working metal in relief or intaglio goes far back, for in Chaldea, Etruria, Egypt, Greece we find jewels, armor, all kinds of objects in silver, iron, copper, bearing designs traced by a pointed instrument or burin. It is not surprising that methods used in the orient have been transmitted eventually to the Roman-Byzantine world, where they have been followed through many centuries. Look at the work of Theophilus the monk, *Diversarum artium schedula* (1) to find the list of tools needed by goldsmiths in the eleventh century. In the two chapters *De ferris fossoris* (Of irons for grooving) and *De ferris rasoriis* (Of irons for scraping) one sees that they used pointed and scraping instruments for engraving metals.

Theophilus tells of two different processes: the older, similar to relief engraving, consisted in sketching outlines of the design and then cutting away the parts that were not to show in print, metal engraving in relief. The other, the opposite method, is intaglio engraving. This distinction has not always been made by critics like Passavant (2) and Weigel (3), who, for example, have confused line engraving and engraving by points or punches, the so-called *manière criblée* or dotted print engraving.

According to specialists (4) all these methods must be classified as follows: engraving with simple grooving, using the burin and cutting away the parts not to print; engraving by round points made with a punch; punch engraving with burin retouching; finally burin engraving.

It is difficult to fix an exact date for the beginning of each of these methods, because most of the prints are not dated. The oldest, and the only unquestioned one is dated 1446, the upper part of a *Flagellation*, part of a series of seven prints of the *Passion* (Berlin print room).

These proofs are not the only documents showing that intaglio engraving was done in Europe before its invention in 1460 by Maso Finiguerra according to Vasari. The goldsmith Finiguerra took a print on paper from a niello plate [a metal plate with a design cut by a burin, the hollows to be filled up by a black enamel], by means of a clay mold and a sulphur cast overlaid with lamp black. The *Coronation of the Virgin* belongs to this type, its silver plate being in the Bargello museum, the sulphur cast in the British Museum, and the print on paper in the Bibliothèque Nationale, Paris (5).

There are other examples of this intaglio engraving on metal done with the burin before Finiguerra: those of the Master of the Playing Cards and his school (6); such as a *Passion* or a *Christ before Pilate*, which is copied in a manuscript of 1441 in the Nuremberg Germanic museum and is found in another of the Tegernsee abbey. These should be compared also with another series of the *Passion* in eight pieces, done by the so-called Master of the Gardens of Love, reproduced in the pen drawings of the *Miroir de la salvation humaine* (Mirror of human salvation) by Jean Miellot, with date 1448 (manuscripts 9249-9250 of the Brussels library).

Along with these graphic proofs certain texts are found confirming the existence of schools of engravers with the burin. At Gand (7) a gild of Flemish goldsmiths, of which the registers since 1400 have come down to us, has left evidence proving the use made of metal plates. These registers are copper plates inscribed with names of members elected, done by the burin in gothic letters.

Further, a contract of 20 August, 1459 found at Lübeck (8)

refers to an agreement by Bertold Borsteld to deliver to Hans Leiden ten engravings on copper and a large *Crucifixion*, a *Last Judgment*, a *History of Troy*. But the contract gives no details as to the method used by Bertold.



MASO FINIGUERRA
The Virgin crowned, on paper
(Bibliothèque Nationale, Paris)

In many cases these metal engravings are proofs from copper plates carved in relief. This method had been used since the end of the twelfth century (9), if it be conceded that the heated tools of bookbinders and the stamps applied to vellum have been able to give birth to what we strictly call engraving. It is always difficult

to distinguish certain wood cuts from engravings on metal cut in relief. Sometimes even irregularities in cutting and a thickness of ink in relief justify the supposition that etching had been done in the early fifteenth century, according to a manuscript of about 1431 (10) by Jehan le Bègue at the Bibliothèque Nationale, Paris, that is to say about a hundred years before Urs Graf, Dürer, Mazzuoli of Parma called Parmigiano, and Lucas van Leyden, hitherto held up as the ancestors of that technique.

Due to this the catalogues of early engravings refer to prints that may have been made as well by an acid biting of metal as by a line engraving on metal in relief. A *Saint Veronica* of the Bibliothèque Nationale, Paris, is called a woodcut by some, a metal print by others. So too with a *Saint Bernard* in the Vienna library.

In many other cases there is no doubt ; for instance, the *Road to the Cross* and the *Calvary* in the Bibliothèque Nationale, Paris.

A great train of many people stretching before Christ on his way to crucifixion recalls the pictures of those mysteries of which the influence on medieval art has been explained by M. Mâle (apropos of which, note manuscript 5058 of the library of the Arsenal). M. Courboin has thoughtfully called attention to the fact that the uncials S.P.Q.R. on a standard of a Roman soldier are reversed. That leads him to the deduction that we have here the work of a goldsmith working in niello. The print would seem to be an artist's trial proof, a pattern of his work, before inlaying his metal plate.

The *Annunciation of the Unicorn* of the Bibliothèque Nationale, Paris (Bouchot 145), which is almost contemporary, is done in this way. Just which workshop it came from is not known. The Flemish school might be indicated by the appearance of an enclosed garden, a *hortus conclusus* analogous to the *Virgin* of Brussels, said to be dated 1418. A French tapestry reproduced in the Gaignières collection represents a similar composition.

The *Last Judgment* in the Bibliothèque Nationale, Paris (Bouchot 177), belonging to this group of prints, is also a metal

print that has given rise to controversy. Above, Christ is seated holding a sword in one hand, a lily leaf in the other, surrounded by angels, two carrying the instruments of the Passion and four others sounding trumpets to announce the Last Judgment. Saint John

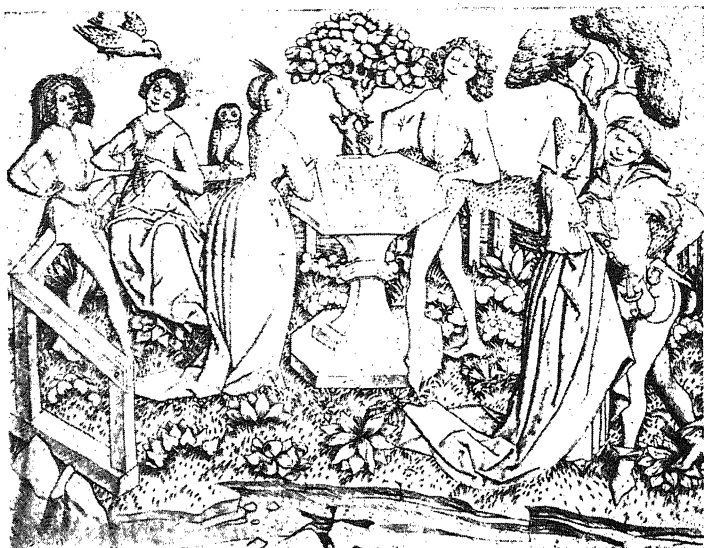


THE MASTER OF THE PLAYING CARDS
The Virgin, on the Serpent, with a Book
(Library of the Seminary, Padua)

and the Virgin are kneeling to the left and right. Devils are hurling condemned souls into the jaws of a monster symbolizing hell, while Saint Peter leads the elect into Paradise. On a shield reversed is a heart with a letter *d* near by (11).

Most of these primitive pieces mark the beginning of an indus-

trial process done by the goldsmiths after a recognized method; but from the middle of the fifteenth century in Germany and Italy what had been nothing but a craft exercise became elevated to the dignity of an art. Great progress was made. A religious imagery



THE MASTER E. S., 1466
Court of Love
(Albertina, Vienna)

with no experience behind it and with an extreme poverty of inspiration was followed by a skilful execution, a firm design, filled with sentiment of plastic beauty. The workmen who made the pious images of popular character gave way to talented engravers whose lessons were followed by many disciples. Under their influence schools were created.

The principal chiefs of this important movement of engraving in Germany were the Master of the Playing Cards, Master ES of 1466, and Martin Schongauer. Without trying to run down the personality that hid itself under the initials ES with date 1466,

nor solving all the problems raised by his alleged place of birth, it is safe to say he was one of the first to develop outstanding skill in the use of the burin. He gave sincere expression to the pleasure of bringing out the interlacings in the motifs of goldsmith's work, in the ornaments, in the details of gothic architecture, and in the letters of alphabets. He is possessed through and through by a deep faith, and certain of his compositions, such as the *Madonna of Einsiedeln*, the *Virgin enthroned with the Infant surrounded by angels* are celebrated. His landscapes, his studies of animals and plants denote also the goldsmith's style. But he had a very remarkable control of form, notably in his Madonnas, his Saints of both sexes, and his personnages of biblical or profane topics. •

His influence on his contemporaries was analogous to that of Martin Schongauer whose rôle was even more important. Schongauer, a painter of Colmar, knew how to join to a penetrating observation of nature, and to a design full of movement and energy, a profound emotion and at the same time a lively feeling for grace. In that connection compare his dramatic scenes, such as the *Large Crucifixion*, the *Bearing of the Cross*, and the charming plates of the *Wise and Foolish Virgins*. They show an extraordinary skill in the combination of strokes, the rendering of well rounded movements, the modelling of forms, the play of light and shade. In such prints as the *Man of Sorrows*, the *Madonna with the Parrot*, and even late in the series showing the *Passion* and the *Apostles*, he is less Teutonic. But in the later works, the *Annunciation* and *Saint Catharine* for instance, and in genre plates such as the *Miller and the Ass* he carries a more delicate and more emotional note.

Many of the fifteenth century German artists came under his influence, and in the flock of his imitators should be noted the Master BS, Wenzel von Olmütz, Albrecht Glockenton, the Master BM, Israhel van Meckenem, the Master of the Amsterdam Cabinet or Master of the Hausbuch, adding to them the famous Nuremberg sculptor, Veit Stoss, who gave us several prints, principally a *Madonna with the Child* and a *Piety*.

In the Low Countries the tradition carried on in the work of the Master FVB, Master of the Death of Mary, while his technique is taken up by the Master W + and Master of Zwolle. It was Allart du Hameel alone who freed himself from their influ-



THE MASTER E. S., 1466
Madonna of Einsiedeln
(Dresden Print Room)

ence, to take possession of his realm of allegorical fantasy in which he deployed his personal qualities and his bizarre humor.

While these prints from painter engravers, inspired by a deep religious sentiment, were thus spreading in Germany and the Low Countries, two decades went by before the appearance in Italy

of the first metal intaglio prints. If these Florentine niellists are rejected as engravers when they pulled a single proof on paper to show the progress of their goldsmith's work, engravers of an earlier period, principally before Pollaiuolo and Finiguerra, who



THE PLANETS: VENUS
Italian School, 15th Century
(British Museum)

died in 1464, are very rare. Most Italian engravers who followed them are anonymous, and fall into groups rather than into a school. They are recognized less by their country than by their technique. For some time the critics have followed the practice of dividing their work into two groups: the fine manner and the broad manner.

The "fine manner" refers to the use of short strokes close together, intended to indicate shadows strongly without thinking of the effects of light within the hatching. It is this method that was followed by the school of Finiguerra, by the pupils of the Master ES of 1466, by the author of the series of the *Planets* and by the artists collaborating in that series of prints called Otto from the name of the Leipzig collector who brought them together at the end of the eighteenth century.

The "broad manner" would indicate a style formed by parallel lines so spaced as to permit the whites to show between the hatchings with extreme nicety. It is a kind of reproduction of pen work by means of the burin. Baldovinetti and Filippo Lippi have used this method with greatest delicacy, and to them should be joined the Master of the Life of the Virgin and Christ and the Master of the Triumphs of Petrarch. Baccio Baldini and Botticelli have also been mentioned in this connection, but it is not easy to select the prints that would be certainly credited to them.

The prints that seem to have had most success at the end of the fifteenth century were Florentine, of the type continued by Mantegna. They make use of lines spaced in the so-called "broad manner," progressing with masses of shading by accentuated hatching, and they succeed in suggesting the interior modeling of masses instead of limiting themselves to tracing of contours.

In the development of intaglio engraving a place ought to be devoted to Florence. It took part in the movement through two principal artists, called by German critics the Master of Balaam and the Master of Calvary. From the former came a dozen pieces, including a *Saint John the Baptist*, a *Virgin with the Child*, and the *Prophet Balaam*; from the second the *Martyrdom of Saint Stephen*, a *Calvary*, and *Saint Peter and Saint Paul*.

All these fifteenth century prints from metal have a primitive character in harmony with gothic style.

SECTION 2

DOTTED PRINT (CRIBLÉ) ENGRAVING

NATURE AND PERIOD OF THE PROCESS

Among the methods of line engraving on metal one stands out in particular, called the dotted print style (*en manière criblée*). It leaves in relief the parts to be printed black, but in place of completely cutting away the lights, white points or dots are used to give the half tones, scattering them in little holes with cutting points of different sizes. The parts left in relief are thus set forth in black, while those cut away remain white on the paper. It is this that is described by the word *interrasiles* (interchased or intercarved), with the prints playing an important rôle in giving tone values (in English, "dotted prints"; in German, "Schrotblätter").

It has long been a matter of controversy whether these dotted prints do not belong to the earliest form of engraving we know, antedating the first wood blocks (12). Leon de Laborde contended that this dotted print engraving had first brought forth the discovery of impression, and that it was the earliest process, from the very start furnishing means for multiplying prints in quantity. According to him it was not a matter of graphic decoration, but rather the discovery of a method of reproduction. It was the result of work of goldsmiths or niello workers rather than of picture makers or miniaturists, because it was these goldsmiths who already had the necessary tools for the invention of engraving.

That theory was supported thirty years later by Henri Delaborde (13). Basing his thesis on two prints in the Bibliothèque Nationale, Paris, a *Carrying of the Cross* and a *Holy Face*, bound in a Latin manuscript, he has shown that these pieces go back to 1406. Beginning with calculations on a calendar in the manuscript, which has 1394 for its first date, he studied the terms used

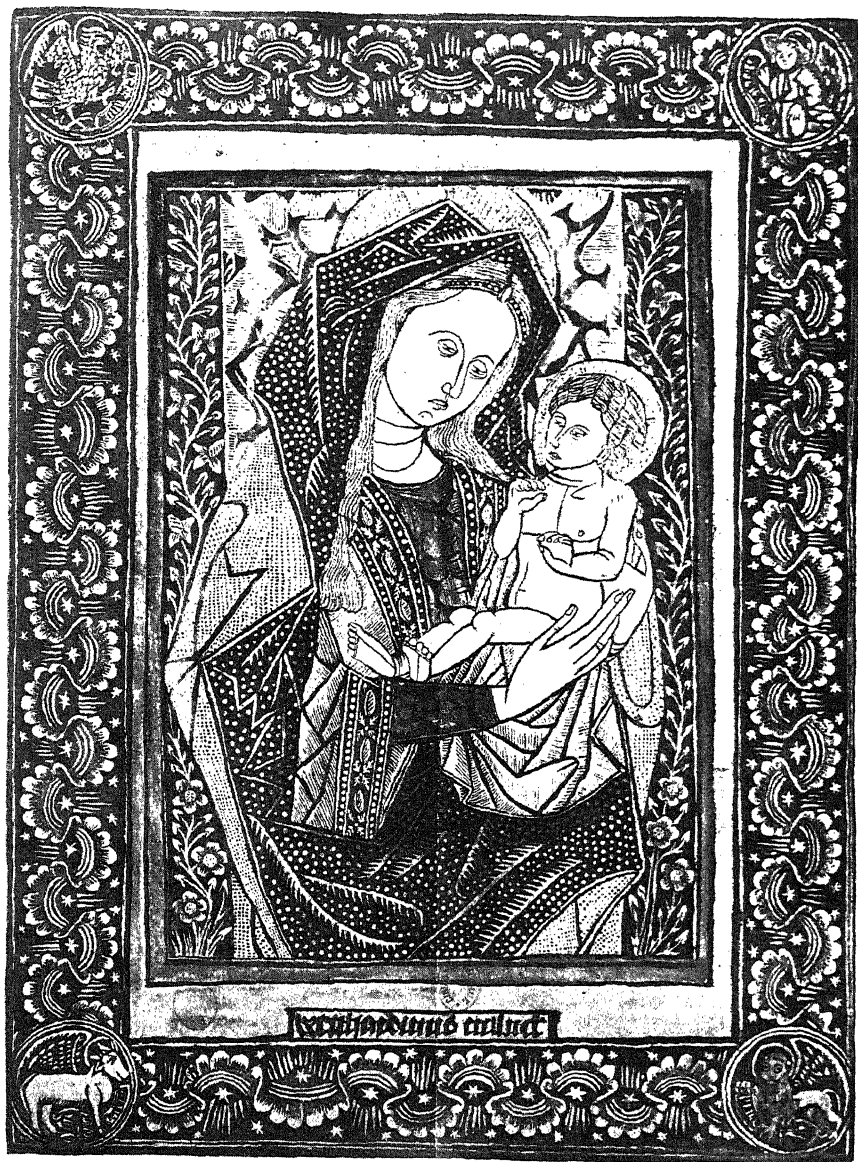
as to the future year, 1413, as the limit of the period that opened with 1394, and by comparison of certain facts he fixed the date as 1406.

As a matter of fact, certain reservations must be made as to the probable date of this dotted print. That date of 1406 has been contested recently by certain historians. They point out in opposition that the two pictures inserted in the manuscript are not an integral part of it. For the *Bearing of the Cross*, as an instance, they show that the last page of the text was not used by the first scribe, and was completed by a Latin text in smaller letters in a paler ink which has offset on the back of the print. This reverse side bears also a dozen lines in German. The same effect appears on the verso of the *Holy Face* where Latin additions are found all around the German text, which seems to have been added later. It would seem possible that these two prints might be part of a single leaf and might have been inserted between the pages of the manuscript at a later date.

Bouchot, examining the *Bearing of the Cross*, held it to be 1440, a date furnished by the pastor Samuel Berger who had studied the manuscript text in which the print was inserted. He thought the manuscript prayer had been an afterthought added by a German who wanted to inscribe a commentary. But unfortunately that assertion is contradicted by publication of a contemporary German book containing the plate (14).

It would be an unscientific approach to credit imaginary artists with having a part in this, such as Bernhardinus Milnet or Milnit or even Cuisnet, as Bouchot reads it. A signature is supposed to be thus deciphered on the bottom of a print of the *Virgin and the Child Jesus* belonging to Earl Spencer, of which a specimen was sent to the Bibliothèque Nationale in 1820 (Bouchot 60).

Some people believe in an alleged French engraver named Bernardin Milnet, to whom is attributed a large number of dotted prints (15), and particularly a *Saint Bernardin* (Bouchot 86).



THE VIRGIN AND CHILD

Modern impression from the original metal, criblé (or dotted print),
middle of the 15th Century
(Bibliothèque Nationale, Paris)

Erect, with upraised arms, he holds in his right hand a disc with a monogram surrounded by luminous rays [the holy name], and in his left a book, the inscription running: Ih[esu]s se[m]p[er] sit i[n] o[re] m[eo] vide lege dulce nomen (May Jesus ever be in my mouth. See, read the holy name).

Below is engraved a five line text dated 1454, incorrectly read 1474 by Schreiber. This is held to be the oldest dated dotted print (16). It has given birth to a series of fantastic theories now completely discredited. All agree in looking at it as an error, agree that Bernhard Milnet never lived, and that the name has been added later by a stamp.

As to the date, it is simply an hypothesis to credit solely to the middle of the fifteenth century these dotted prints, a supposition disproved completely by new documents. In spite of the lateness of the period when we find this work done, the skill of the craftsmen producing it is inferior to that of the woodcut makers. This intaglio engraving is rudimentary experimenting. Use of the burin gives another method. Then there is also the result attained by punch marks supported by crossed or superimposed strokes.

But most of these dotted prints are from metal engraved in relief, and forgetting that fact may lead to mistakes. It is thus that inexact interpretations have been given to the print called the *Annunciation*, the *Visitation*, the *Nativity* (Bouchot 57). M. Gusman (17) has corrected these incorrect interpretations with technical competence. Bouchot wrote that he held that print a reproduction of a French work of 1470: It must have been intended for goffering with a hot iron, said he, for the letters read to the right; and without that explanation one could not admit that the negative could have been used solely for a print on paper, all the figures coming out black.

That explanation would not satisfy us, for Bouchot, in examining a modern proof run off like an early print on a contemporary copper plate, would seem to believe that he was there concerned



SAINT BERNARDINUS

Anonymous, colored, crible (or dotted print), middle of the 15th Century
 (Bibliothèque Nationale, Paris)

with an impression from a plate. He did not suspect that it was a line engraving on metal cut in relief. The hollows had been printed in black, instead of leaving them white, and a negative proof had been the result. The original copper plate which had been used in the printing, sometime owned by Gay the archeologist, was rediscovered when his estate was settled, and was acquired by the Louvre. It was used in an interesting experiment: a proof was taken from it by means of a burnisher, and then another done as a piece of typographic printing, a positive print this time as contrasted with the other negative (18). Only the parts in relief were inked. The plate was unquestionably authentic, and as a result came a print relating to the comet of 1665. Unfortunately the artist's name remains unknown, though certain letters on a little scroll on the wall to the right of the Virgin seemed to indicate a name like Miloni.

M. Gusman has compared that composition with a similar subject painted by Lochner at Cologne, and with a mural decoration in the chapel of the Ponthoz chateau near Huy-sur-Meuse. According to Comte Durrieu it deserves comparison with the *Belles Heures* of the Duc de Berry. But the style is rather that of the Cologne school.

Wherever it came from, the *Annunciation*, by the technique of its engraving, furnishes very interesting details. The punch marks, broken by superimposed strokes, offer various forms, points, crosses, stars. The whites are secured, not by trying to cut away the metal, but by burin. That instrument makes but slight hollows, indicates the strokes of tinting, and depresses the metal enough to let the hollows escape being touched by the ink and the paper not receive a black impression where there were white parts. It is a delicate work, carrying with it certain difficulties.

These have led certain critics to ask if those metal plates from which proofs on paper are found were really intended for impression. The objection is made that many of the inscriptions are



THE ANNUNCIATION, THE VISITATION, THE NATIVITY
 Anonymous engraving on copper, middle of the 15th Century
 (Louvre)



engraved in reverse, and there is the temptation to believe that the plates might either serve as decorative motifs for jewelry or receive niello or enamel. The second suggestion is more likely. That is the case, for example, with a copper plate in the Louvre, engraved in relief, showing *Saint John and Saint Paul* with two pennants bearing the questionable date of 1423. M. Gusman contends that the plate had not been intended for impression. But in general all the other copper plates seem to have been made for giving prints on paper. The presence of nail holes on the prints proves that the original cuts were indeed metal, and these traces undoubtedly indicate the holes intended to fix the plate on a larger wooden piece.

It is not easy to classify these dotted prints critically and logically because of the uncertainty as to their date and their place of origin (19). Three prints with a certain relationship have sometimes been grouped together, the *Saint Christopher*, *Saint George*, *Saint Francis* of the Bibliothèque Nationale, Paris.

Saint Christopher (Bouchot 94, Schreiber 2590) is very noteworthy by its costume. The Saint is clad in a tunic decorated with ermine and ornamented with a belt touched up with plaques of gold work. He is stepping forward, leaning on a large staff, carrying on his shoulders a child with a halo of leaves. On rocks to the right a hermit with lantern; on the summit of the rocks (on the left) planted with three trees, an angel holds a pennant with this legend: . . . m[ane] vid[et] noct[ur]no t[em]p[or]e rid[et] hic fer[tur] mund[us] est u[er]e t[ibi] labile p[on]d[us] (who seeth thee by morning light will happy be at fall of night, here is borne the world, truly for you a weight likely to fall).

The stippling of the trees, form of rocks, flowerets on the ground, the strawberry plant and the thistle in the lower part of the composition, all these details are very curious.

Ought a *Saint George on Horseback* of similar technique (Bouchot 102; Schreiber 2633) be attributed to the same studio?



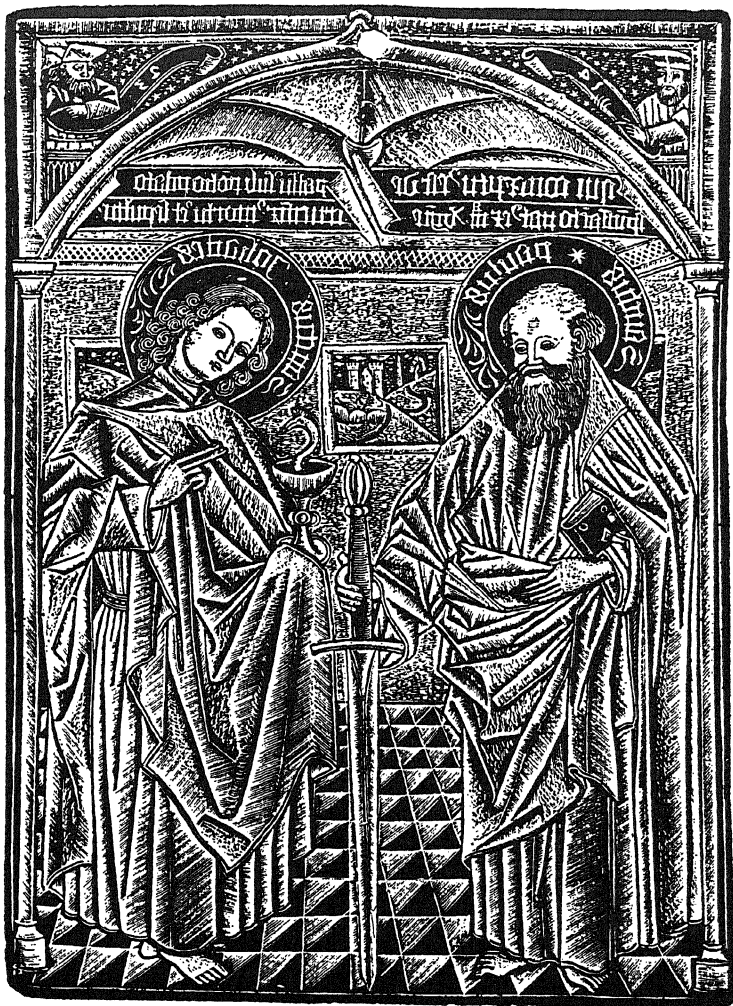
SAINT CHRISTOPHER
Anonymous criblé (or dotted print), middle of the 15th Century
(Bibliothèque Nationale, Paris)

Saint George's hair is in ringlets like that of Saint Christopher. His long spurs, his sword, his breastplate, his shoulder plates, his arms and his brassards point to an identical source. The mountain on the left, with three trees, and the rocks to the right with a fortified château on top, can they help support those suppositions?

The *Saint Francis* (Bouchot 100; Schreiber 2627) has long been credited to the fabulous Bernard Milnet. Aged, receiving the five stigmata from a Latin form crucifix, he is treated a little in the so-called Bernard Milnet manner. The border in particular recalls that of Saint Bernardin and the Virgin and Infant, because it is a copy in reverse.

Many of these dotted prints bring themselves together by identical borders, and may thus be grouped. One must note, however, that frequently these borders inspired by oriental motifs do not come from the same plate, but from two different plates. There are movable borders as in a passe-partout to be applied to a print according to its dimensions. This is what is called polytypage, a current practice credited by Didot to the printers of books of hours, and noted by Courboin (20) in earlier dotted prints.

Among so many pieces belonging particularly to the figurative field none is signed, except five or six prints which carry a coat of arms showing two crossed bludgeons: the *Nativity* (Berlin print room, Schreiber 2191), the *Calvary* (Dutuit collection, Schreiber 2341), the *Saint Christopher* (Munich print room, Schreiber 2596), the *Struggle of the Husband against the Wife* (British Museum, Schreiber 2763), the *Madonna on the Crescent* (Oxford Library, Schreiber 1898). The artist is unknown, but he reminds one of the author of a *Saint Catherine of Alexandria* (Bouchot 134, Schreiber 2569), where the ground and flowers are treated as in *Saint George* and *Saint Christopher*. In the saint's phylactery is this inscription: "Cum floribus septem mihi capio Christum // Grammatica, logica, re[thorica], arith[metica], geo[metria],



SAINT JOHN AND SAINT PAUL

Anonymous criblé (or dotted print), middle of the 15th Century
(Louvre)

atque m[usica]" (With seven flowers, grammar, logic, rhetoric, arithmetic, geometry, and music [the usual "astronomy" being omitted], I comprehend Christ).

Certain pieces have been the subject of much controversy, as a *Saint Dorothea*, *Saint Jerome*, and a succession to the *Passion*.

Saint Dorothea (Bouchot 140, Schreiber 2716) has been called *Saint Opportuna* by Bouchot, because the name of that saint is found in Gothic minuscules at the bottom of the print, but it seems to have been added in error in manuscript. M. Gusman has shown that the basket of flowers and the sceptre are attributed to *Saint Dorothea*, not to *Saint Opportuna*, who usually is marked by a cross and a book (21).

In *Saint Jerome* (Bouchot 117a) the lion accompanying the figure seems to resemble one in the French manuscript 166 in the Bibliothèque Nationale, Paris, which suggests that the print may belong to the middle of the fifteenth century, with addition of some considerations drawn from the style of architecture, nature of the trees, the headband of Christ. The composition appeared later in a book published at Seville in 1532 by Juan Varela of Salamanca, *Epistolas del glorioso dotor San Hieronymi agora nuevamente impresso y emendado*, proof that the cut was able to be taken to Seville at the beginning of the sixteenth century. These plates travelled, but from that no one dreams of saying that the place where they were found is the place where they were made.

As with woodcuts some of these dotted prints have been preserved in book bindings; thus a series of twelve pieces relating to the *Passion of Jesus Christ* (Bouchot 7) has been taken out of Latin manuscript 6244 of the Bibliothèque Nationale, Paris. In this class of prints comes a *Death of the Virgin* (Bouchot 58), a *Saint Erasmus* (Bouchot 97), a *Saint Gregory* (Bouchot 111).

For the sake of art it is not important to try to make deep study of the reasons for attributing many of these primitive dotted prints to such or such a school. Whatever the place where they were made



SAINT GEORGE

Anonymous metal, criblé (or dotted print), middle of the 15th Century
(Bibliothèque Nationale, Paris)

they show rudimentary esthetics, and are not so much an honor to the country of their birth as are the woodcuts. They show a stiff and jerky style, the fruit of a study of technical processes. No important progress was realized in this dotted print medium. It began at the middle of the fifteenth century and ended with the century, quite forsaken. Dotted print engraving is supplemented by engraving in relief (22) which comes to approach *champlevé* work and gives proofs pulled by means of a press, such as the *Saint Bathilda* of the Piot collection (Bibliothèque Nationale, Paris), which has a text engraved on wood (23).

These details about dotted print engraving have nothing but an historical interest. The artists abandoned it for line engraving and etching, to come nearer perfection. The strokes will no longer be labored, but as free as those of pen or crayon.

Such are the principal phases of the development of engraving in its oldest works. It has seemed well to give them an exclusive study, because the deeper one delves the deeper becomes the conviction of the impossibility of settling with precision the technical process, the inventor, the country, the date of those primitive prints. It must be confessed that we are reduced to theories, but theories of that sort have to be founded on documents, must be subjected to critical examination, and must be explained by history.

For the latter point of view there are two considerations properly insisted on by Renouvier. One relates to the humble origin of engraving. He looks on it as nothing but the shadow of painting, of sculpture, of goldsmith's work. The shadow, however, forecast printing. Out of this grows the second assertion, that engraving, more than other branches of art, came to be an instrument of propaganda, a means of instruction, capable of instilling into the masses a new spirit that was later to flood the Church.

3

Wood Engraving

IT WAS more than half a century ago that Renouvier (1), apropos of the primitive wood cut, called attention to the fact that a whole art had remained swallowed up in the books of the end of the fifteenth century, and that it was necessary to disinter it.

Before the hour when the invention of printing permits cheap diffusion of works intended for propagation of ideas and for instruction of the masses, the possibility of multiplying pictures by a cheaper method of reproduction—engraving—had already been conceived. The idea of making books and ornamenting them with pictures came later.

But the privileges of guilds of “historiators” and miniaturists had to be reckoned with (2). They united to defend their rights against these new processes threatening harm to them. Substitution of paper for parchment, of printing with movable types for calligraphy, use of engraving on wood or metal, these all constituted a new danger for the guilds. Combination of these elements permitted production of illustrated books at a cheaper price than manuscripts.

At the beginning of the conflict the illuminators preserved the craft of coloring their pictures, which threw the engravers into a secondary place. The first printed books imitated manuscripts, because they were printed on vellum, in types suggesting the letters of the manuscripts, ornamented with miniatures or with engravings entirely colored by hand. They tried to give the illusion of being manuscripts. The first printers seemed not to want to harm

established prejudices, and they followed models already created, but did this more cheaply.

Little by little they break with tradition; books are printed exclusively on paper. Engraving becomes independent of illumination; pictures are not plastered with colors; they are self-sufficing. The separation between the various crafts that joined in the manufacture of the book became less marked; the manuscript was no longer imitated; the illustrated book is now completely independent, with a life of its own.

As illumination ceased to be subordinated to the miniature it appeared in the first printed books under the form of engravings on wood or copper where the value of black and white tones has already been studied. Wood was used more than copper. The tradition of the oldest books with picture plates seemed to be continued, but it really suffered a change. In the earliest printed books the pictures and the engraved text were done on one side of the sheet by a burnisher, while the letter-press is printed on the press on two sides of the sheet with movable types. The wood block is still used, but sawed down to smaller size, and printed in typographic fashion.

Text comes to be more closely associated with the picture on the same page; impression is given both text and picture in the same manner, and the proportions adopted for the imposition become well studied. On the reverse of wood blocks combining manuscript and print, where a space was left for the manuscript text beside the printed picture, the space for the engraving is then calculated. When using woodcuts from these early printed books the printer is no longer content, when there proves to be insufficient space to use the whole block, to make the part containing the text disappear by a simple stroke of the saw. In the combination of movable characters and prints consideration is given not only to length and breadth of the plates but also to their relief. To secure good impressions they had to be even in height.

Ink used for this was not so rich in color as that used in miniature

work ; engravings come more to recall those lightly tinted drawings called ink portraits (3). For those who regretted the richness of tone of the illuminator the engravers asked the privilege of an occasional coloring of their prints.

In spite of all the influence exercised by manuscripts on the early printed books, the association of pictures with text printed from movable types marks a new achievement in the history of the book. It is found as early as 1460 at Bamberg in work from Albert Pfister, in 1471 at Augsburg with Günther Zainer, in 1474 at Cologne with Nicolas Götz, in 1476 at Basel with Bernard Reichel, in 1478 at Lyons with Matthias Huss.

It would be interesting to learn the names of the artists who illustrated these early printed books. Unfortunately the pictures are anonymous, often reproduced in one edition from another ; and because certain works lack dates it is not possible always to distinguish the original from copies or later imitations. Counterfeiting was not punishable in the middle ages as at present, and many a time did a block in those early days of printing pass with or without changes from one publisher to another, or sometimes even with the same printer pass from book to book.

Count de Laborde has noted (4) that Saint Augustine's *City of God*, printed at Abbeville in 1486, is completely plagiarized from an earlier manuscript preserved at Turin. One may add that many frames or borders of plates are reproductions of miniatures already seen.

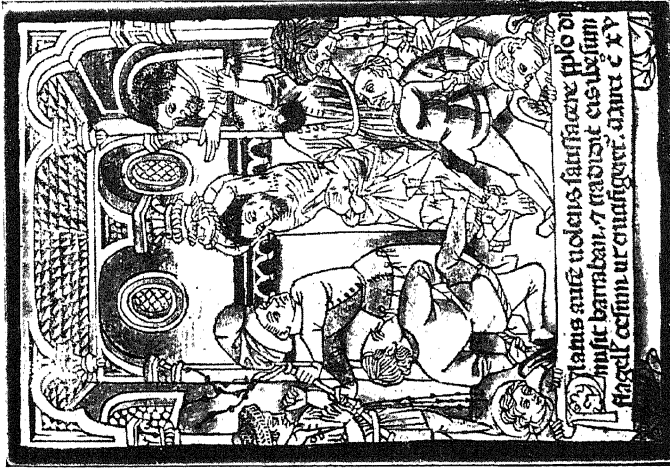
There are many examples of the practice of using cuts in one edition after another, by no means accidental coincidences, but rather the product of a perfectly recognized system. The first wood cutters were workmen with not the slightest conception of what we now call artistic property. The publishers who employed them paid no attention at first to the rights of the author. Whether they were printers in the strict sense of the word or publishers in the larger sense, the delivered product bears the slight shade of differ-

ence that it was printed for or by this or that business man. It is his name that sits in a prominent place either on the title or the colophon. No other name is mentioned. Vérard's books are particularly striking. Due to his signing them we have to credit him with many works made for him by the numerous artists he employed.

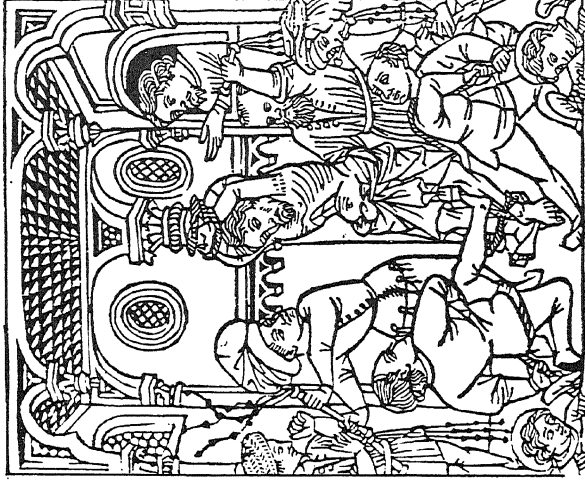
Many documents appear to prove that the pictures in books were considered as intended for circulation. Take, for example, the existence of certain contracts for the rent of engraved plates (5). Abbé Requin has thus discovered at Avignon a contract for leasing of material made 30 July 1501, between Topie, a Lyons printer, and Pierre Rohaud, printer at Avignon. According to this, Rohaud leased to Topie not only a printing press but matrixes, "histories" engraved on copper and "histories" engraved on wood.

These contracts were executed in France as well as in other countries. An English Act of 1484 shows that foreign merchants and artists were at that time permitted to have all their work imported free of all restrictions (6). In Italy one can find a very convincing comparison (7). For example, take the oldest Venice issue of a *Life and passion of Jesus Christ*, done about 1450 to 1470 (in the Berlin print room). Part of the eighteen plates with engraved text which they illustrate reappeared later with the lower part sawed off, in the *Devote meditationi sopra la passione, del Nostro Signore* of Saint Bonaventura, which appeared at Venice in 1487 over the imprint of "Ieronimo di Sancti ed Cornelio, suo compagno." A recognized practice at that time.

In France it is easy to find other examples of this kind of copying. Pigouchet's *Hours of the Virgin* (8), printed in 1491, has eighteen cuts found also in the *Horae beatae Mariae Virginis* printed at Paris by Jean Morand for Geoffroy de Marnef in 1492. Another Pigouchet book dated 16 September 1488, is later imitated in Venice in 1497 by Vostre in a missal. Eight plates of the *Destruction de Troie* (Paris: Bonhomme, 1484) are used in *Lancelot du Lac* (Paris: Le Noir, 1520) and in Livy's *Gestes Romaines* (Paris: Le Noir, 1515).



SCOURGING OF CHRIST
 Block book, about 1450-60
 (Berlin Print Room)



SCOURGING OF CHRIST
Devote Meditationi, Venice, 1487

Along with woodcuts reproduced exactly in various books at different times there are also illustrations that underwent changes according to the books they found themselves in. It was no longer a simple reproduction, it was an adaptation. M André Martin, as we have already pointed out (9) has shown that a Vêrard print, published first in the *Bataille Judaique* of Josephus has been retouched three times. In the book a warrior bishop is shown with the mitre. The mitre is replaced by a royal crown in the *Chroniques de France* of 16 September 1493; the crown is changed to a helmet in the *Lancelot du Lac* of 1 July 1494.

Many cases could be shown where the wood blocks had thus been changed as the need of the printers demanded. It is a frequent practice in connection with *Books of Hours*. An *Annunciation* ornamenting the *Horae Beatae Mariae* printed at Paris by Pigouchet for Vostre 20 January 1496 (Lacombe 39) is used in another Paris *Hours* (without date, but about 1503) (Lacombe 133), and in another done by Kerver (Lacombe 147). A *Saint John* placed in the *Horae Beatae Virginis* (Paris: Pigouchet, 1491-2) passes into the *Horae Beatae Mariae Virginis* (Paris: Jean Morand, for Geoffroy de Marnef). The *Isidori dialogus* (Paris: G. Marchand, 1494) makes use of a woodcut that appears with variations in the *Eligiae Fausti* of Andrelinus (Paris: G. Marchand, 1496). Certain plates of the *Chevalier délibéré* of Olivier de la Marche (Paris: Caillaut, for Vêrard, 1488), such as *Grace of God* and *Chevalier*, after having reappeared in the *Arbre des batailles* of Honoré Bonet, are adapted in an edition of the *Roman de la rose* (Paris, 1528?).

When a picture is repeated in two works, not dated but apparently about contemporary, it is not always possible to establish certainly for which book it was first composed and printed. Most frequently, with other indications lacking, the data helpful in fixing the date of the text help distinguish an original plate from a replica. It would be interesting to undertake a classification of sub-

jects according to the succession of editions where they are reproduced, pointing out such variants if they exist. To be complete such a task would call for the establishment of a corpus of all illustrated incunabula with reproduction of all the engravings illustrating them. By comparisons we could thus calculate where and how often a plate is used for illustration. Such a grouping, which would be of a certain value, would call for a complete photographic record of all illustrated books.

That plan, which would demand long and expensive effort, has not thus far been realized. One can do little more than bring notes of what one printer borrowed from another, until a catalogue of the plates has been made and arranged according to the works where they appear. No such catalogue exists; but in spite of that we have here tried to make a critical study giving particular attention to original prints and less to later impressions.

These illustrations in books, at first rather rusty, after having been decorated by the illuminator and then vividly colored, soon came to be printed in thick, black ink, first on vellum, then on paper. Running them off became very simple, technique improved, the taste of amateurs changed. They no longer called for the colors the "historiers" and the illuminators had accustomed them to. From that moment the book illustrators are independent of all the other crafts working in the same field. Birth of a new art began (10).

SECTION 2

THE EARLY PRINTED ILLUSTRATED BOOK IN GERMANY, ITALY, THE LOW COUNTRIES

The oldest illustrated books printed with movable types appeared in Germany. The record of these typographic incunabula has been carefully made by Schreiber and Schramm (11). The

cuts ornamenting them are popular in character, a thing that makes them peculiarly original. Although we do not know the names of the engravers we usually refer to them by name of publisher, title, and date of publication of the book they are found in.

Earliest is Albrecht Pfister (12) of Bamberg. He issued first an *Ackermann von Böhmen*, probably 1460, and a *Boners Edelstein, oder Fabelbuch*, dated 1461, containing about one hundred woodcuts. We credit him also with *Buch der vier Historien, von Joseph, Daniel, Esther und Judith*, dated 1462, decorated with sixty-one woodcuts. Another very successful work is a *Biblia pauperum*, of which there are two types, one with German text (*Armenbibel*) the other in Latin.

At Augsburg one of the earliest printers is Günther Zainer. His principal works are Bonaventure's *Meditationes de vita Christi*, 1468; Voragine's *Leben der Heiligen*, in two parts, *Winterteil*, 1471, *Sommerteil*, 1472; *Belial, Processus Luciferi contra Jesum Christum iudice Salamone*, by Jacobus de Theramo, 1472, which was also the date of *Guldin Spil* and Aesop's *Fables*; a *Plenarium* in German, 1473, an almanac for the same year, and a *Speculum humanae salvationis* in German; to say nothing of certain texts of Isidore of Seville, such as the *Etimologiarum libri XX*, Boccaccio's *Compendium de praeclaris mulieribus* [Hain 3329 credits it to Johann Czeiner, 1473.—Translator], a Bible in German reproducing many of Pflanzmann's cuts published in the same place in 1470. To this Jodocus Pflanzmann is credited also a *Histori von der Zerstörung der Stadt Troia*, by Guido de Columna, with ninety-three cuts. At the same time Hans Baemler prints a *Summa confessorum* of Johannes Friburgensis in 1472, a *Belial* in 1473, *Die Histori von den grossen Alexander nach Eusebius*, also 1473; *Histori von der Zerstörung der Stadt Troia* in 1474; and Anton Zorg brings out the *Spiegels menschlicher Behältniss*, in German in 1476.

Among Cologne printers mention may be made of Nicolaus



O lieber herr ihesu criste als
 du kreutzgiltigen pilt erkam
 den an dem dritten tag von
 dem tode und pilt erschinen
 deiner lieben muter und
 maria marie auch den andern
 deinen lieben iüngern und
 sy erfreuelt als du sprachst
 der frid sey mit euch also
 lieber herr las mich auch also
 erfreuet werden an dem iün-
 gsten tag und gyb uns nach
 disem leben in deines vater
 reich das ewig leben amen

THE RESURRECTION

(*Leiden Christi*. Bamberg: Albrecht Pfister, 1460)

Wie Achilles kam von dem gejagt vnd bracht
 eyn geschunden lewen. vñ warff in für sein mü-
 ter vnd schiron. doch kant er sy nit sein müt zeln



ACHILLES RETURNING FROM THE HUNT

Guido de Columna

(*Histori von der Zerstörung der Stadt Troia*
Augsburg, 1470)

Goetz who published in 1474 and 1478 two editions of *Fasciculus temporum* by Rolevinck; Heinrich Quentell, printer of a Bible illustrated with one hundred and twenty-three cuts, in 1479 [Hain 3141]; and Johannes Koelhoff who came from Lübeck to set himself up at Cologne.

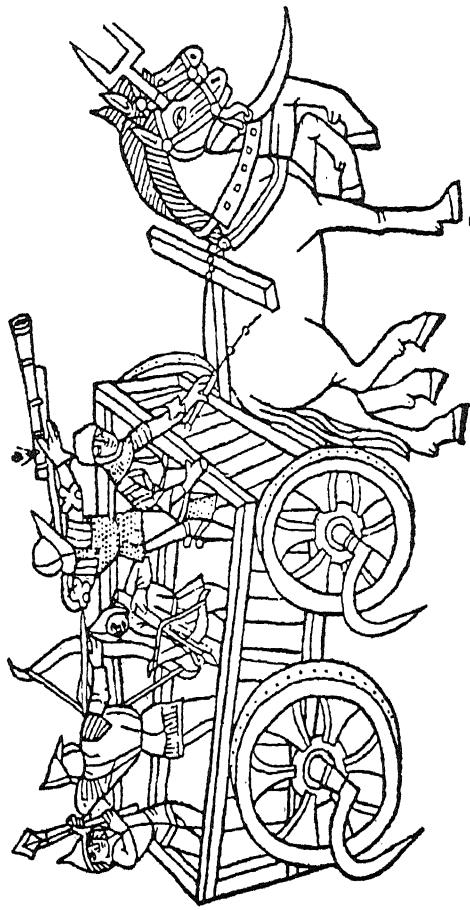
At Lübeck one must not forget Lucas Brandis who brought out in 1475 a *Rudimentorum noviciorum* containing cuts of Dutch origin.

Other illustrations no less interesting decorate the *Leben des heiligen Hieronymus*, printed in 1484 by Bartholomeus Gothan, and the Bible of 1494 [credited to Stephan Arnd, Hain 3143.—Translator].

At Mainz appeared the *Meditations* of Torquemada issued by Johann Neumeister in 1475 [1479, Hain 15726]. Breydenbach's *Peregrinationes* in 1486, in German and Latin, by Erhard Reuwich contains the most original cuts, with views of cities and the country, many curious topographic and historical documents.

A city that played an important part in the history of the illustrated book is Ulm. It is there that Johann Czeiner, father of Günther Zainer, gives us Boccaccio's *De mulieribus claris*, in Latin and German, 1473, with illustrations recalling those of the early printed books of Augsburg. Those enriching the Aesop's *Fables* that appeared two and a quarter years later denote a better design. These qualities are more accentuated in two works done by Conrad Dinckmuth, *Seelenwurtzgarten* (1483) and *Buch der Beispil der alten Weisen* (1485).

To the masters of Ulm those of Basel are close. The oldest books are not the best. In that class are the *Ackermann von Böhmen*, 1473; a *Spiegel der menschlichen Behältniss*, by Bernhard Richel; a *Panormitanus*, by Michael Wenssler, 1477 [Hain 12309 credits it to Bernh. Richel]; an almanac for 1478, Johann von Amerbach. Beginning in 1489, date of Berthold's *Horologium*, one notes Michel Furter who published a *Hortus sanitatis* in 1489, Aesop in



(A)

ARMORED CHARIOT

Vegetius, Kurcze red von der Ritterschafft
(Ulm, 1470)

(B)

CREATION OF EVE

Bible

(Augsburg: Jodocus Pflanzmann, 1470)



alle sijn d' evo: Wan adam waer nidef fanten sein
gelyck Adam d' berre got sijn eimen schijf in
Adam 'Dio do se was erschaffen se nam ene, us

(B)

oe mensch waer gemacht in een leetgege sel 'Dian
d' berre got bet geplyntje ein pansen oes wolla
fies von mifang oaren fage se ten mifche oen
se bet gebiloe 'Dio oer berre got liff wachfen oer
d' evo ein bolc fohne gefide vin luffe yeffen, un
oas bolc d' sefons in mieren oas paratof von oas
bolc d' volfent oes giten wi-oe ahein 'Oe a
fuff gong auf von d' lize oes wolla je foudes
oas paratof, d' oarady waer gellit in 'Wae tede
Oe nam oes ainen pifon. Oe, it oer oas vmetet
allas oas lant enlath, oas wite gebon oas godo-
oas got oes lanoes it oas liff 'Dio oas wite fun/
oas d' wirtbaum beellum, vno d' lten ordinue
'Dio oer nam oes ainen fuff gion. Oe fuff it d'
oas vmetet allas oas lant d' moen 'Diam oer nam
oas wite fuff gion, oer liff get gyon oen affid
oer liff d' wite fuff it enlath: 'Alfo nam got
oer liff oas wite fuff it enlath, vno fage in oas paratof
se oen wolla oas lant, vno oer liff oas wite fuff
se gebon in fuffon 'Dio, vno oer liff oas wite fuff
pactiof, wam von oen bolc oer liff oas wite fuff
gaten vno oer liff oas lant oen fuffon 'Dio, vno oer
d' oen tag oer liff oen in oen fuffon oas coes 'Dio
got d' berre fuffon 'Dio, it oer liff d' mifchen fuffon
allas, vno mifchen in oen luffon in fuffon. Oer-
vno got d' berre d' fuffon, ja adam, alle oer liffge
vno got d' berre, vno alle oer liffge oer liffge
ber gebiloe von d' evo, oas se luff wite se fy fuff
'Diam was adam beffimpt eime yegubon liffon
fel oas it se nam vno adam d' liff it nam all se
berre oing d' evo vno alle vogel oer liffge vno

1492, a *Ritter vom Turn* in 1493; and Bergmann von Olpe, with an edition of Brandt's *Narrenschiff* in 1494.

Nuremberg counts famous printers also. First there is Friedrich Creussner, to be credited with an *Ars et modus contemplativae vitae*, 1473, an *Arbor consanguinitatis*, 1474. Then Johannes



EVE AND THE SERPENT
Spiegel menschlicher Behältnisse
 (Augsburg: Günther Zainer, 1470)

Regiomontanus, author of astronomical diagrams, 1474 to 1476, and Johann Sensenschmidt, printer of the Bible of 1476. The best known is Anton Koburger who illustrates in 1481 the *Postilla* of Nicolaus de Lyra, a German Bible of 1483, a *Passionale* of 1488, a *Schatzbehalter* of 1491, and Hartmann Schedel's *Weltchronik* in 1493. Along with him Conrad Zenzinger with *Burde der Welt*, 1481; Peter Wagner with Brandt's *Narrenschiff* of 1494; Stuchs with John Gerson's *Works*, 1489, [Hain 7623 ascribes Gerson's *Works* to (Strasbourg), 7624 to Nicolaus Kasler at Basel.—Translator.] occupy a less important post in Nuremberg printing.

Four other cities may be mentioned: Cologne, because of

Johannes Koelhoff for his Aesop's *Fables*, 1489 [Quentell, Proctor 1292; or a choice between Quentell at Cologne or Lotter at Leipzig, Pellechet 212]; Magdeburg that counted Ravenstein and Westphal with a *Plenarius* of 1484 [Hain 6749], Simon Koch with a German almanac of 1486, and Moritz Brandis for an Aesop of

**Das xxx. capitel. von den zwien ersten freyē kün-
sten. Gramatica vnd logica von item vrsprung vñ
vrsach warum̃b sy erfunden seyn. auch von item
lob vnd nutz. vnd zelest von item mißbrauch vñ
vngemach.**



LESSON IN GRAMMAR
Rodericus Zamorensis,
Spiegel des menschlichen Lebens
(Augsburg: Günther Zainer, 1471)

1492; Munich with Benedikt Buchbinder printing in 1488 an *Oraison dominicale*; and at Leipzig in 1496 and 1497 appear almanacs similar to those of Landsberg.

One can not forget Strasbourg, which plays a less important part in the history of illustrated books than in the history of printing, but does bear testimony for a particular style. The first works here are the *Etymology* of Isidorus of Seville, an Aesop in 1482 by Knoblechtzer, a *Plenarium* of 1483, and an *Alexander the Great* of 1488, both printed by Martin Schott, Mentelin's father-in-law.

But the most celebrated is Hans Grüninger to whose credit stand a *Biblia latina cum postilla*, an almanac in German, 1493, and an edition of Brandt's *Narrenschiff* of 1494 [cf. Panzer, v. I, p. 60, no. 325 for 1497 edition].

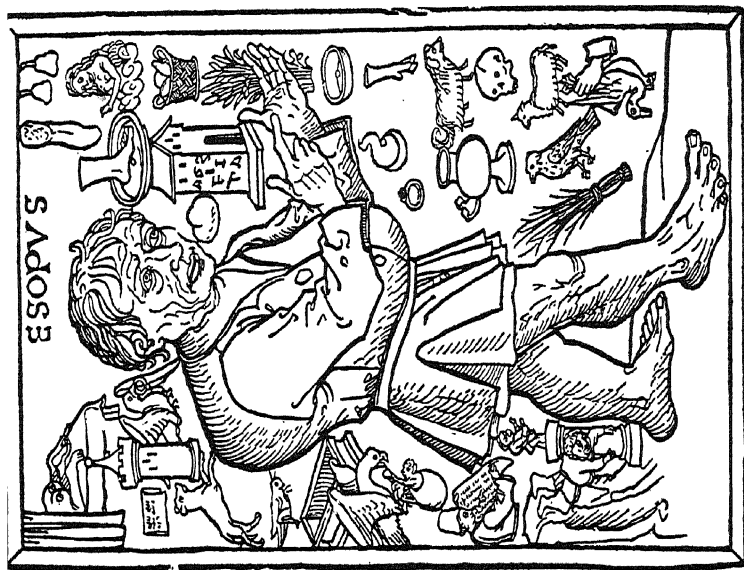
In Italy, setting aside a blockbook incunabulum *Passion of Christ* preserved in the Berlin print room, the oldest illustrated book is the *Meditations* of Cardinal Torquemada, Rome, 1467, as the following colophon indicates: "Finite sunt contemplationes supradicte et continue Romae per Ulrich Han anno Domini millesimoquadringentesimosexagesimo septimo die ultima mensis decembris." The work is ornamented with thirty-four woodcuts attributed to a German artist, Ulrich Hahn.

Verona also deserves a place apart, because in that city was published in 1472 the work of Valturius *De re militari*, illustrated by eighty-four woodcuts attributed to Matteo de Pasti, the Verona artist. The printer was John of Verona.

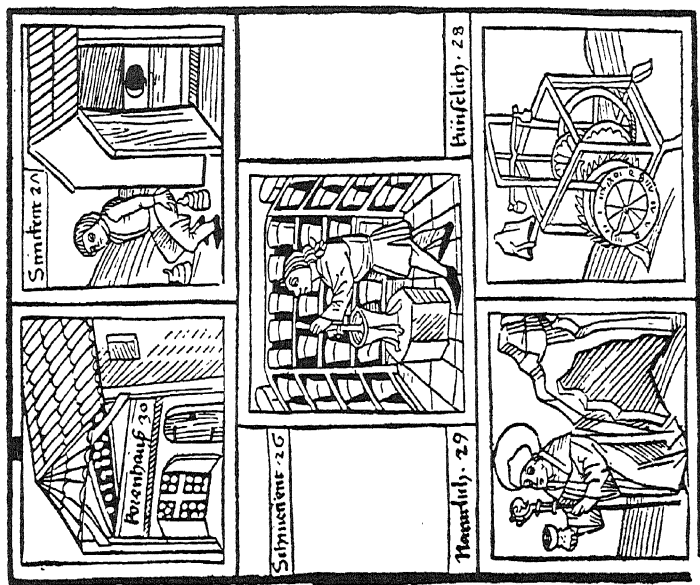
It is Venice that holds the dominating position in Italy at the end of the fifteenth century so far as concerns early printed books with illustrations.

The first productions of Johannes and Vindelinius of Speyer, such as Pliny's *Natural history* of 1469, Cicero's *De officiis*, Livy, Vergil, Valerius Maximus, in 1470 and 1471, are not enriched with large cuts but with simple printed borders.

The first Venice illustrator is Erhard Ratdolt, from Augsburg, who in 1476 printed a *Calendarius* in an elegant style, with work of fine quality. The cuts illustrate eclipses of sun and moon. What is completely new is appearance of a title page telling the subject of the book, date, place, name of printer. To judge the progress made it is necessary only to compare those plates with some of the borders used by Vindelinius of Speyer in 1470 in his *Sonnetti* of Petrarch, his *Rhetorica* of Georgius Trapesuntius. Those qualities of Ratdolt are found in his editions of Appianus, 1477 [Hain 1307], of Euclid, 1482.



AESOP
Buch und Leben des Hochberühmten
Fabeldichters Aesopus
 (Ulm: Johannes Zainer, 1475)



Arts Memorandi
 (Augsburg: Anton Sorg, 1470)

Besides him many engravers ought to be noted, such as Peter Loslein, Bernardus Pictor, Jeronimo de Santi who gives an illustration to Saint Augustine's *City of God* and to the *Triumphs* of Petrarch the next year. In that same year appeared from the press



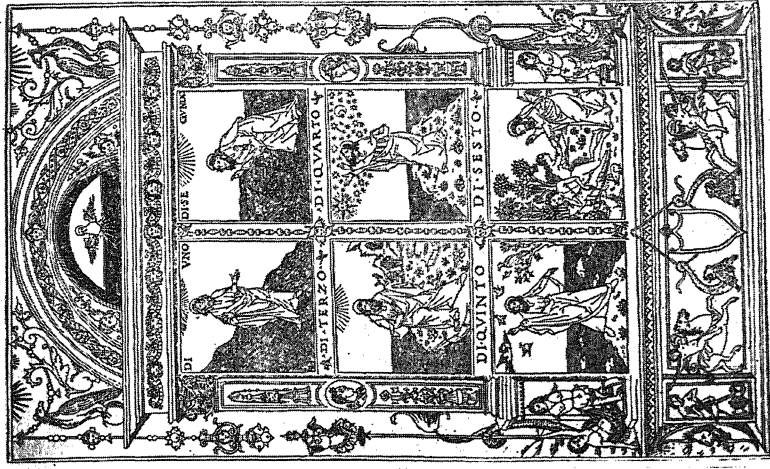
MONK PRAYING BEFORE THE POPE
Turrecremata, *Meditationes*
(Rome, 1467)

of Luc Antonio Giunta the celebrated Malermi *Biblia volgare historiata* [1490], enriched with 350 plates, a year after Mateo de Codeca had published the *Meditazioni* of Saint Bonaventura [1489]. He brought out four years later the famous *Triumphs* of Petrarch [1493]. Giovanni and Gregorio de Gregoriis publish a second edition of *Facsculus medicinae* [1495] of Johannes de Ketham, the first edition of which had so much success in 1491.

The most important Venetian work sprang from the presses of Aldus Manutius in 1499, the *Hypnoteromachia Poliphili*, or *Strife of Love in a Dream*, by Francesco Colonna (Franciscus Columna). The charming woodcuts adorning it, which belong also to the



PETRARCH'S *Sonnets*
(Venice, 1488)



MALERMI *Bible*, IN ITALIAN
(Venice, 1490)

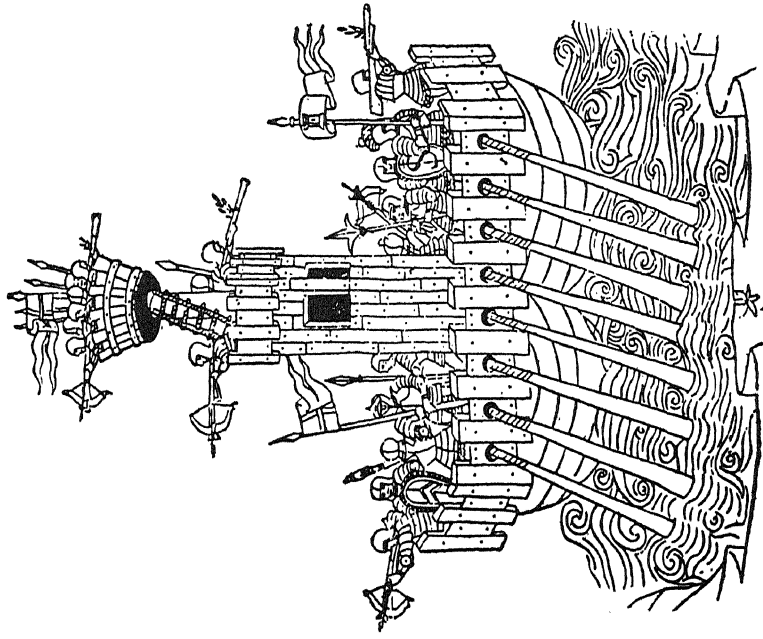
Malermi Bible, bear witness to a freshness of sentiment that reveals the delicate taste of an artist of the age of humanism.

Influence of Venetian woodcutting extended to Brescia, Ferrara, even to Milan and Modena. At Brescia in 1487 Bonono de Bonini prints an Aesop with cuts inspired by the Verona, 1479, edition of Giovanni Avisis. At Ferrara the *Legendario di S. Aurelius* [1489], certain books of Lorenzo de Rossi, and the *De claris selectisque plurimis mulieribus* of Fra Jacopo Foresti of Bergamo [1497] show much skill in technique.

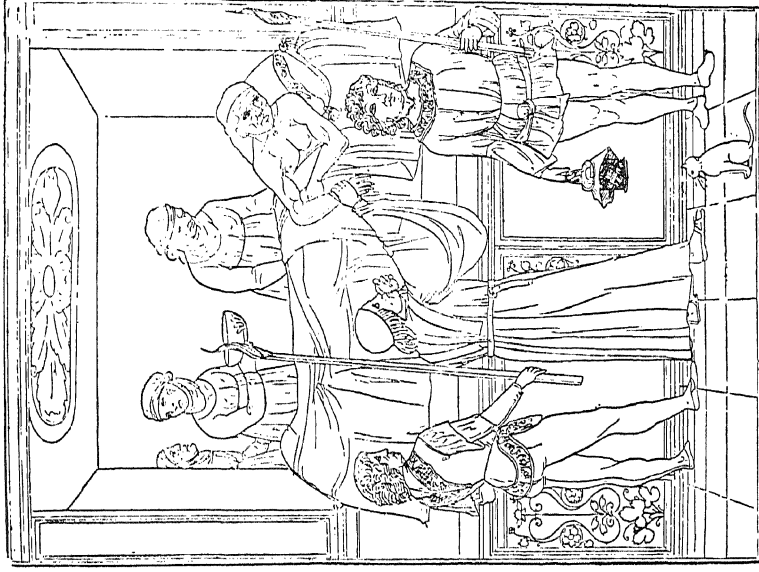
At Milan the cuts approach those of Ferrara, for example the *Missale Ambrosianum* of Zarotus [1475], appearing in the *Totius juris canonici breviarium* of Paulus Florentinus in 1479 and later in the illustrations of Franchinus Gafurius on *Theorica musicae* in 1492, and the *Practicae musicae* in 1496. At Modena mention must be made of *Legenda trium regum* of 1495, which reminds one of the 1493, Ferrara, Alfrangus.

A city deserving special mention is Florence. In 1477 appears the *Monte sancto di dio* by Antonio Bettini, the *Septe giornate della geographia* of Francesco Berlinghieri, about 1480. We must note in 1490 Domenico Cavalcha's *Specchio di croce*; *De arithmetica opusculum* by Philippus Calandrus in 1491, and particularly the *Trattato dell' umilita* of Savonarola in 1492. Among the other highly appreciated Florentine specimens of illustration are the *Laude* of Jacopo da Todi, 1490; Christoforo Landino's *Formulario de epistole volgari*, 1492; and especially the publications of Piero Pacini da Pescia, *Epistole ad evangelii*, 1495, *Compendio delle revelationi* of Savonarola, *Fioretti* of San Francisco, 1497, and the *Trionfi* of Petrarch, 1499.

To conclude this view of the illustrated book in Italy in the fifteenth century we must not omit Rome, where Joh. Philippus de Lignamine prints in 1481 the *Opuscula* of Philippus de Barberiis, ornamented with figures of prophets and sibyls; and Naples where Francesco Tuppo publishes in 1485 a very interesting edition of Aesop ornamented with woodcuts.



MAN-OF-WAR
Valturius De re militari
 (Verona, 1472)



SICK MAN IN BED
Ketham's Fasciculus Medicinae
 (Venice, 1493)

In the Low Countries two of the oldest printers are John of Westphalia and Jean Veldener. In 1475 both are printing illustrated books at Louvain. One of the first to succeed at that time is the *Fasciculus temporum* done by Jean Veldener [1476, Hain



POLIPHILUS, *Hypnerotomachia*
(Venice, 1499)

6920], with plates recalling the *Rudimentum noviciorum* of Lucas Brandis at Lübeck [1475, Hain 4996]; he printed *Epistelen ende Ewangelien* at Utrecht in 1479 [Hain 6649].

At the same time as Veldener we have Gerard Leeu printing at Gouda the *Dyalogus creaturarum optime moralizatus*, which ran through nine editions between 1480 and 1491. From him come also some thirty plates in the *Liden ende passie ons Heeren*. Others were published at Antwerp, such as the *Vita Christi* of Ludolphus de Saxonia, *Die glose op den Psalmen Miserere* of 1491.

Another Gouda printer highly appreciated is Jacob Bellaert of Haarlem, author of a *Belial*, 1484. To the same year belongs Colard Mansion's *Les metamorphoses d'Ovid moralisées* for Thomas Waleys, which appeared at Bruges with 34 illustrations.



AESOP'S *Fables*
(Venice, 1487)

The other printers, such as Jacob van den Neer, Snellaert of Delft, are of no great importance. The only one who stands out is Govaert van Os, known by his illustrated edition of the *Chevalier délibéré* of Olivier de la Marche, Gouda, 1486. It contains compositions of a really pictorial character, and influenced various masters of the Low Countries.

SECTION 3

THE EARLY PRINTED ILLUSTRATED BOOK IN FRANCE

French illustrated books attach themselves to two principal centres: Lyons and Paris. There are others, active schools at Chablis, Poitiers, Angoulême, Rouen, Angers, Vienne, Toulouse, Chambéry, but it is Lyons and Paris that play the important part in the history of the combination of printing and engraving, those two that merit an exclusive study (13).

(A.) THE LYONS SCHOOL

The artists of Lyons were rivals of Paris in book illustration at the end of the fifteenth century. Lyons even preceded Paris, for it was the first city in France where engravers were hired to ornament printed texts.

There are many reasons for the speed of development in these pictures. Lyons first had been the centre of manufacture of playing cards. Then by its geographical situation it formed an excellent market place, frequented by the printers of Germany, the Low Countries, Switzerland, and Italy, to whom it offered business opportunities.

As to the manufacture of playing cards at Lyons it is enough to recall here that we know much about the activity of these makers of playing cards and "molds" at the end of the middle ages. We have the names and the records of many of the masters. From 1449 to 1489 documents in the tax archives give us precise information, including the names of Jean du Bois, master Jacques, master Morel, master Etienne, Antoine Chevalier, Jean de Vingle, Jacques Arnollet, and most particularly Guillaume le Roy, and the master I. D. (identified as Jean de Dales) (14).

The presence at Lyons of Flemish and German printers also



Le Miroir de la Rédemption
(Lyons: Martin Huss, 1479)

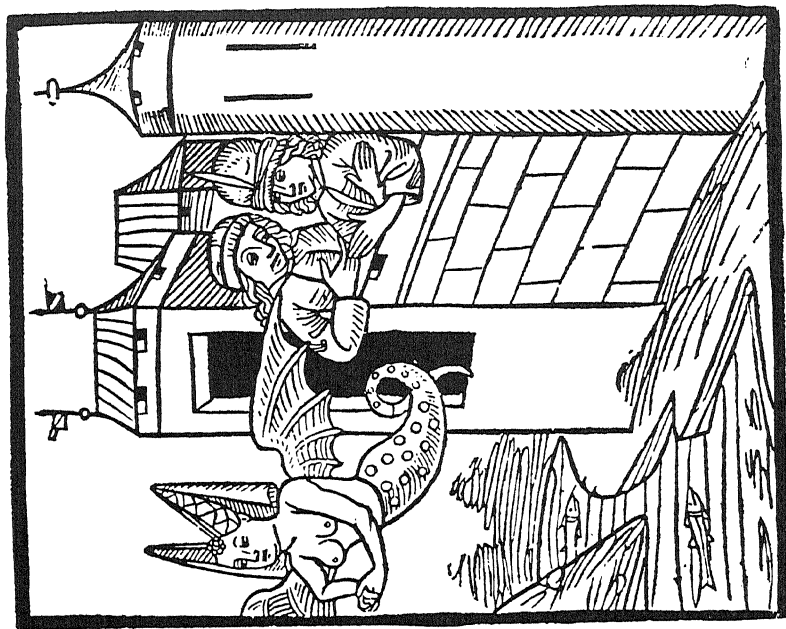
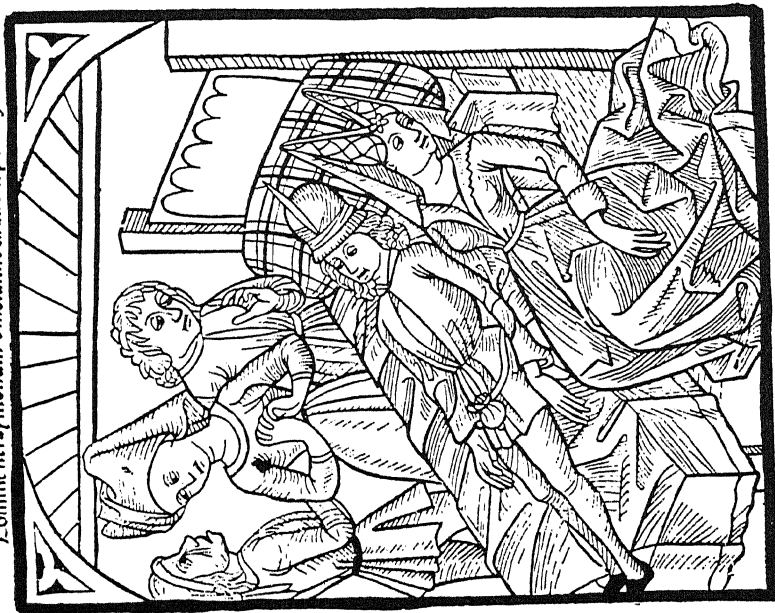
favored the development of the illustrated book. Here must be given much credit to the influence of Colard Mansion, the celebrated printer of Bruges, on certain Basel printers such as Bernard Reichel, and on the German printers, such as Nicolas Philippi of Bensheim and Marcus Reinhard of Strasbourg, as well as Martin and Matthias Huss, both from Württemberg. Lyons, unlike Paris, had no illuminators' guilds to hamper the printers by fear of being replaced and losing their privileges.

These are the foreign elements that make it difficult to search for a purely French school of illustration at Lyons in the fifteenth century. To succeed in running down the truly original works and in distinguishing them either from copies or from imitations of German incunabula is a task of selection that calls for extreme care. At a time when the frontiers are not precisely indicated, or the former territorial divisions very different from those we find today, it is a delicate question to define precisely the characteristic traits of the engravers of books, as we can do at Paris.

One can only limit oneself to grouping by schools all those which have a common trait and which seem to have put their individuality into their work, even if they secured their inspiration from foreign editions published some time earlier. Claudin has thus been able to name fifty Lyons studios. Publications from their presses deserve to have a place reserved for them in a history of French engraving in the fifteenth century.

It was at Lyons that the first illustrated book was printed in France. The work is called *Le mirouer de la redēption de l'umain lignage*. It appeared 28 August 1479, the first known date for French books illustrated with engravings. The finishing of printing is thus announced: Here finishes the book of the Mirror of the Redemption of Human Beings, translated from Latin into French according to the intent of the Holy Scripture, examined and corrected and translated by the reverend doctor Iulyen of the Augustins of Lyons [Julien Macho] according to the literal sense, as

Comment raymondin et melusine chairent palmes.



JEAN D'ARRAS, *Melusine*
(Lyons: Martin Huss, 1490)

may be seen by those who diligently take pains to read it and well to understand and has been printed the year of the incarnation of our Saviour 1479, the 28th day of August (14a).

The plates that adorn this large folio come from a work that first appeared at Cologne in 1474, then at Basel in 1476, probably done by Bernard Reichel and called *Spiegel menschlicher Behältnisse*. The engravings of the Lyons edition are the same as those of the Basel text; 22, however, are lacking in it. They are divided into Old and New Testament subjects: creation of Eve, Adam and Eve expelled from Paradise, Cain killing Abel. A curious series represents the parable of the prodigal son, with striking scenes, such as when he demands his inheritance, squanders his property, mounts his horse, feeds the swine, returns to his father.

This work had a great success, and two fifteenth century editions should be mentioned. The second is really the more important; it appeared a year after the first, 28 August 1479, published by Matthias Huss. The figures are the same in both.

Nicolas Philippi of Bensheim and Marcus Reinhard of Strasbourg were associated together at first, later separated. Reinhard went to rejoin his brother John at Strasbourg, and established himself at Kirchheim in 1491. Philippi remained at Lyons.

On 20 August 1482 there was printed by Nicolas Philippi and Marcus Reinhard *Le miroir de la vie humaine* by Rodriguez sancius de Areualo, Bishop of Zamora. It has pictures of highest interest for the history of trades. These plates show: functions of notaries and *tabellions* (village notaries), the seven liberal arts, functions of songster, art of physician and surgeon, art of business, art of building, art of arithmetic and geometry, textile art, the farmer.

The second Lyons illustrated book is Aesop's *Fables* from the press of Nicolas Philippi and Marcus Reinhard. It is dated 26 August 1480 (Lyons library). The colophon runs in this fashion:

Here finishes the subtle fables of Aesop, translated from Latin into French by the reverend doctor in theology Brother Julien of the Augustinians of Lyons with the fables of Avian and Alphonse and also other joyful fables of Poggio the Florentine, printed at Lyons by Nicolas Philippi of Bensheim and Marc Reinhard of Strasbourg, the year 1486, the 26th day of August.

It contains wood cuts copied from German editions published at Ulm, Augsburg, Strasbourg. It is a folio, slightly smaller than the *Mirouer de la redemption*. The plates of the Ulm edition illustrating Aesop, done by Johann Zainer (15) about 1476-1477, reappear again in a Lyons edition printed by Matthias Huss and Johann Schabler, 15 May 1484, and in another of 1489 from Topic and Jacobus of Herrnberg.

Nicolas Philippi and Marcus Reinhard printed also the *Légende dorée* of Voragine in French without date, full of naive and charming illustrations, such as Massacre of the innocents, the torture of Pope Callistus, the Circumcision, the Martyrdom of Saint Christine. The book is printed in two columns, in gothic characters as all the early printed books, but the engravings are not typically Lyons work. In 1483 Nicolas Philippi prints the *Promptuarium exemplorum* of Johannes Herolt, with small wood engravings. In 1486 he joins with Jean du Pré of Lyons, and on 15 June 1487 they publish the *Vies des anciens saints Pères Hermites*, with engravings inspired by those of Jean du Pré of Paris, but different. Nicolas Philippi died in 1488.

Martin Huss, from Botwar, near Marburg in Westphalia, printed books with plates even more suggestive of those of German artists. For example, the *Procès de Bélial à l'encontre de Jhesus*, by Jacobus de Theramo, translated from the Latin by brother Jacques Forget, printed by Martin Huss the 8th of November 1481. It took its cue from a German edition of Augsburg. The author supposes that Jesus, having gone down to Hell to chain Lucifer, would be only a disturber. Complaint is lodged

against him before the celestial court, and Belial is sent before him as ambassador. Jesus is shown holding the standard of Christianity, and listening to Belial, his cloven-footed adversary. Solomon, appointed judge, begins the trial. Jesus makes Moses his advocate; the judges, Emperor Augustus and Jeremiah for Belial, Aristotle and Isaiah for Jesus, give the sentence. Certain plates relative to punishment for the sin of avarice and the sin of luxury are of a curious style. The Huss *Procès de Bélial* was reprinted in 1482, 22 March 1485, 1487, 1490, 1493.

Huss published also four works, quite rare, entitled: *Livre de l'Ecclésiastique*, 1481; *Livre de Mandeville* (8 February 1481, new style). Some are not dated: the *Exposicion et la vraie déclaration de la Bible tant du Vieil que du Nouveau Testament*, the *Mirouer de mort* of Olivier de la Marche, and Cato in French.

In *Exposicion et la vraie déclaration de la Bible* the plates showing the creation of the world stand out, also the ones depicting Judith at the siege of Bethulia beheading Holophernes. They are important documents for the history of costume in the fifteenth century. For the customs of the time the *Mirouer de mort* supplies an interesting plate showing clerical burial, and the Cato in French gives a view of the interior of a school with a master armed with the birch speaking to his pupils. In all the volumes there are no pictures exclusively French and completely dissociated from all German inspiration.

To find true Lyons work we have to wait for Guillaume le Roy (16). He began in 1473, but it is not until about 1483, date of the death of Buyer from whom he had been separated two years, that his first illustrated books appear. One of the oldest plates attributed to him by Proctor is *L'histoire du chevalier Oben* (British Museum), decorated with a plate representing the Virgin seated before the Infant, crowned by two angels. According to Rondot this would be the oldest Lyons woodcut that served as an illustration of a book.



et pourquoy estoient en celieu et si derement ilz l'ont veu.
Item en quel an, en quel moys et en quel iour, en quel ly



**Alomon roy de Iherusalē et de la maieste diuine spe-
ciallement delegue sur la cause esmeue entre belial**

JACOBO DE THERAMO

Belial, in French

(Lyons: Martin Huss, 8 November 1481)

Another work of Guillaume le Roy with compositions that seem very original is the *Livre des Enéydes* of 30 September 1483. The colophon runs: And here finishes the book of the Aeneids, composed by Virgil, which has been translated from Latin into French, printed at Lyons by master Guillaume le Roy the last day of September in the year one thousand four hundred and eighty-three. Some cuts, though in a style still naïve, show a new technique and sentiment. They show how Priam, the very great king, builds the city called Troy the Great; how Dido buys land as large as an oxskin where she erects the city of Carthage; how Dido with a great curse bids farewell to Aeneas.

Guillaume le Roy must be credited also with the charming plates illustrating books without dates: a Boethius *De consolatione*; a *Danse des aveugles* with the famous plate of the Marche de la mort; *Ponthus et la belle Sidoine* (Condé museum, Chantilly); a romance of chivalry illustrated with spirit, the *Chapelet des vertus ou roman de prudence*, an edition of the *Roman de la rose*; a *Mélusine* (Bibliothèque de la Arsenal); a *Doctrinal de la Sapience* of Guy de Roy, 9 February 1486 (new style) with a plate showing Jesus between two thieves, and another with Christ rising from the tomb, appeared in 1484 at Chambery in the *Exposition des Evangiles*. In 1485 come a reimpression of the *Destruction de Troyes la Grant* published by Bonhomme at Paris in 1484; four editions, one of 20 January 1486 and three others in January, July, and November 1487, of *Fier à bras*, following those of Geneva, 1478 and 1483. We must not forget moreover the *Chute des Anges* and the *Livre des Saintz Anges* of 20 May 1486 with figures of angel musicians; a *Bertrand du Guesclin* with an engraving bearing the letter G; the *Mystères de la Sainte Messe* with a plate of the Annunciation signed I. D.; and particularly *L'histoire de Pierre de Provence et la belle Maguelonne*, no date, with illustrations showing the lovers dining with the king; as well as the *Quatre fils Aymon*, no date, with charming cuts.

We may push back into the same period as the first work of Guillaume le Roy, that is to say about 1483-1484, two books issued without date, of Lyonnais type, called one the *Abuzé en court*, the other the *Doctrinal ou enseignement du temps présent*.

The *Abuzé en court* is often incorrectly referred to as an impression of 1476. It has even been asserted that it might be the first illustrated book in French. But the specialists in early printed books (Pellechet 22, Hain 30) correctly assign it to 1484. An argument in favor of that is the presence of signatures at the bottom of the gatherings, something not done before 1477.

The eleven wood cuts illustrating this volume of 61 leaves seem to be in a really French style. The subjects are inspired by farces and allegorical moralities. The Abused One tells Aristotle of his aversion to the court; but Abuse and Confiding Fool promise to assure his fortune if he follows them to the Court. The Court is a beautiful woman who takes him into her employ when he is introduced to her. The Abused One is made to put on a fine doublet, but ruins himself by wasting his wages. He meets a young lady, Fool Love, for whom he plays the fool; he prefers a plea to Madame the Court, but receives from her nothing but illusory promises. He is miserable, and Abuse and Confiding Fool Belief insult that misery; he goes to find Aristotle, who refuses to heed his ills. He is taken to the hospital by Poverty and his sister Sickness.

The *Doctrinal du Temps présent* [or, as it was called in other issues, *Le Doctrinal de court*] is drawn not from a morality play but from a satire of loose morals. The author is Pierre Taillevent Michault; the text is dated 1466; but the printing would seem to be contemporary with the *Abuzé en court*, that is to say about 1484. The Lyons edition is derived from a work of Colard Mansion published at Bruges about 1479. But the illustrations denote no foreign style, and approach most closely to those of the *Abuzé en court*. The subjects are very important for a lively recognition of school organization at the end of the fifteenth century. The

author, to visit a school, has himself conducted by Dame Virtue, but at the entrance he encounters Disdain. When he wishes to listen to the lessons of the professors the chairs are occupied by Falsity, Vainglory, Ambition, Corruption. A pupil is asleep in the arithmetic class. Different professors give their courses. One expounds to his pupils what is style; another, comparisons; another, a good doctrine. None of these pictures is particularly edifying. The author retires with Dame Virtue his guide, and goes to a school where Truth is in the chair; but this time there are no pupils. The school room, he said, was covered with dust, and worms were eating the benches.

How far back do the oldest illustrations go? It is as difficult to answer that question as to fix a date for the oldest single prints; but it is safe to say that the most famous Lyons printers used cuts of a style that would appear older than the time when they were used.

That is the case, for example, with Matthias Huss, like Martin Huss from Württemberg. He made use of French plates. The *Destruction de Troye la Grant mise par personnaiges*, of 5 January 1486 (new style) has plates imitating the work done by Jean Bonhomme in 1484. *L'histoire de Pierre de Provence et de la belle Maguelonne* printed by Huss reproduces the woodcuts of Guillaume le Roy. He borrows again from Guillaume le Roy the plates of his *Méhusine*, to which he adds some variations of his own invention, as Raymondin leaving for the chase with his uncle, Raymondin meeting three ladies.

Matthias Huss occupies an important place in the history of the French illustrated book. We have certain data for his biography. He appears as a printer on the tax rolls from 1485 (17), was taxed 3 livres 20 sous in 1485 and 2 livres in 1488, what was then a high tax. He married the daughter of André Daveyne, fishmonger, and he owned a house in Lanterne street.

Certain publications of Matthias Huss, accompanied by curious pictures, help us understand the part he played in the Lyons pub-



L'Abuzé en Court
 (Lyons: anonymous school, about 1494)

lishing business. Thus *Le propriétaire des choses* or the *Livre des propriétés des choses* of 12 November 1482, has naïve pictures of physicians, druggists, occupations of the months of the year, colors, odors. Among other curious plates one may mention a peasant woman at market candling eggs. On the 21st of January 1483 he gives a new edition of *Procès de Béliel*.

The *Fardelet des temps* of 1483 is remarkable for certain typographic displays and for engravings showing monsters. He gave in 1483 in collaboration with Petrus of Hungary a *Légend dorée* in French. Huss joined with Schabler to print Boccaccio's *Le Livre de la Ruyne des nobles hommes et femmes* with pictures showing astrologers looking at the stars.

The *Subtiles fables d'Esope* of 15 May 1484 are less original, for Matthias Huss contented himself with reproducing here the plates of the Reinhard edition of 1480, with the *Contes of Poggio*. On 7 November 1488 (new style) he issued a fourth edition of *Béliel*.

Three books seem of a more personal character. One is a *Legenda aurea* of 1486, of which the cuts are very different from those of 1483, particularly the figures of saints: Saint Clément, Saint Thomas Aquinas, Saint Pétronille, Saint Praxède, Saint Apollinaire. *Le grand uita Christi en francoys*, by Ludolphus de Saxonia, the Carthusian, translated from the Latin by Brother Guillaume Lemenant, published by Matthias Huss and Jacques Beyer (7 July 1487, old style), reprinted on the 1st of March 1494 (new style), shows in the frontispiece the translator offering his two volumes to Jean le Bourbon, constable of France. There are but two copies, one in the Condé museum at Chantilly, the second, imperfect, in the Besançon library. The most amusing pictures of Matthias Huss are those that adorn two books without dates, the *Belle dame qui eust mercy* and the *Livre des connoilles*, of which the first page shows a picturesque gathering of old women. These works give him a singular position, more than his reimpressions

of *Pelerinage de la vie humaine* by Guillaume de Guilleville (1485) and the *Valère la grant* (1489, old style) or the *Miroir de la rédemption* (1482) or the *Pélerin de la vie humaine* of 1499.

We must not forget to mention *La grant danse macabre des hommes & des femmes hystoriée & augmentée de beaulx dis en latin*, known in only two copies, one in the Huth collection [bequeathed to the British Museum, the imprint date 18 February 1499] the other in Prince Essling's. In that work Huss has added a new composition. Skeletons symbolizing Death take possession of a printing shop and seize, one the compositor, the other the pressman. And then comes the turn of the publisher.

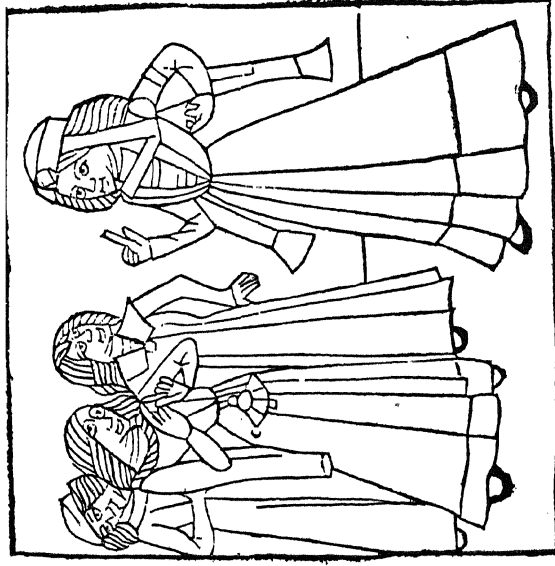
One of the printers who had a personal style is Johann Trechsel, of Mainz, who married the widow of Nicolas Philippi and who had from an earlier marriage a daughter who married Bade. On 9 February 1489 (new style) appeared the *Quadragesimale aureum*, a collection of sermons for Lent, adorned with plates signed I. D., which might be, as Rondot thinks, a card maker named Jean Dales. His best known work is his fine edition of the *Comedies* of Terence, 29 August 1493, illustrated with 159 woodcuts, among which we find the author in his study, a theatre with the boxes of the aediles, various classes of society placed according to their rank, 21 subjects of the Hecyra, 31 of the Adelphi, 26 of Phormio, 50 of Andria, 28 of the Eunuchus, 24 of Heautontimoroumenos. The drawings of this book, which are very beautiful, have been attributed to Jean Perréal by Didot. Whoever the artist may be he shows by his composition and his execution great advance over certain coarse works of earlier or contemporary publications. The *Vigilles de la mort du fey roy Charles septième*, of 1493, and the *Dialogus* of Ockham are adorned with plates which do not have the same importance, though there is a curious picture of master and pupil in this last book. The *Comedies* of Terence in particular were imitated at Lyons. Trechsel must have died in the middle of 1498.

Jacques Sacon (called Arnollet), of Bourges, and Claude Daygne, of Salins, are referred to as companions in 1492 (18), that is to say partners in an edition of *Vigilles de la mort du feu Roy Charles septième*. They take their inspiration from the Terence of Trechsel, published by Josse Bade, and in the cuts of *Quatre fils Aymon* they imitate the plates of Jean de Vingle. The *Doctrinal de sapience* of 10 April 1499 (new style) is decorated with initials of which some recall those of Vérard. One of Arnollet's most esteemed works is *Valentin et Orson* of 24 April 1495 (Condé museum at Chantilly).

Claude Daygne is distinguished particularly by a French translation of Cicero's *De officiis*, dated 6 February 1493 and 15 January 1496. The book is ornamented with a frontispiece showing Cicero giving his book to his son Marcus. Among other products of this studio must be mentioned the *Vie de Nostre Seigneur Ihesu Christ* of 23 June 1495 (Wolfenbüttel library), and the *Passion de Nostre Seigneur Ihesu Christ* with cuts that had appeared in the *Exposition des evangiles* by Maurice de Sully.

An older edition of the *Ystoire des deux vaillans chevaliers Valentin et Orson* was published by Jacques Maillet (19) at Lyons, the next to the last day of May 1489. To his credit stands also a copy of *Fier-à-Bras* of 21 July 1489 with plates borrowed from Guillaume le Roy. Other less important wood cuts adorn the *Livre du preux et vaillant Chevalier Jason et de la belle Medée* of 3 November 1491, and *Baudoin, comte de Flandre* of 20 November 1491. Mention should also be made of the *Songe du Vergier* of 20 March 1492 (new style).

One of the most remarkable productions of Lyons presses is Breydenbach's *Des saintes pérégrinations de Ihérusalem & des auirons et des lieux prochains, Du mont de Synay et de la glorieuse Katherine*, of 28 November 1488. It is the oldest French book with copper plate engravings, curious views of Parma, Corfu, Modon, Candia, Rhodes, Jerusalem, Venice, churches, costumes

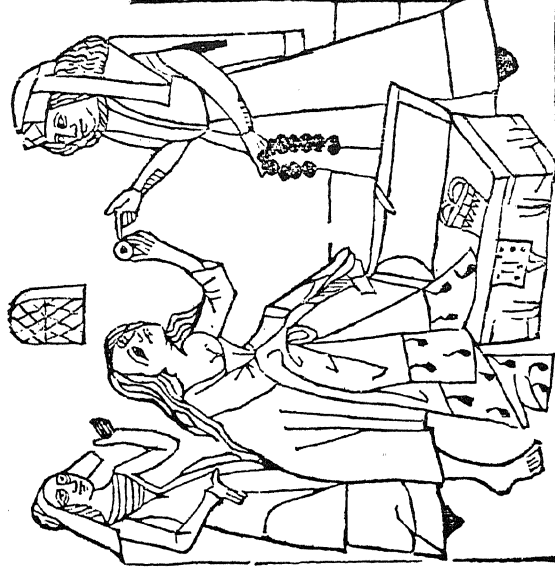


et sen da Et la soit ce que tu foyes ieune et en fleur de leu
le fleur de ieunesse la mort luyt et chaste et est prouchain
es gens ne on ne sup peut eschapper et aussi bien fault il
ving comme l'autre et ne scait homme quant ne comment
recop et accepte noz piteies car nous se peions et supplions
sone preies et requieses de par ceus qui nuf de tes cōmar
ne refuseroient que tu nous demisses encharger de toy que
et nous la se procurer ons celle queisse sera digne de toy auo
i avant et son frere nue ne pourra esbeter aus sans rien hors

PETRARCH, *Histoire de Griseldis*

(Lyons: no date)

mon enfance estre nourrie en ma Vieillesse la mort biē me plait
bien heureuse et honorable Deue de si grāt seigneur cōte tu es. Et
Doulentieres serap lieu a ta nouuelle femme. laqueisse soit a ton bon
cœur et aduenture comme de tout mon cœur se desire
La grant pacience et grant desir et obediē
ce de Griseldis



Se puy endroit puis quil se plaisir doulentieres mē p

of the Arabs, Saracens, Jews; animals including crocodiles, salamanders, giraffes. There was an earlier edition in Latin in 1486. Its printers were Michelet Topie and Jacques Heremberck.

The artist who did the illustrations remains unknown. According to Passavant (20) he should be Italian, for in a view of a Venice street formed of many plates joined together to make a single one almost two metres long, the Doge's palace, Saint Mark, and the port are rendered in the Italian style. But that is not a very moving argument. Other critics (21) have attributed these compositions to the Netherlands school. Edward Reuwich of Utrecht has even been suggested as artist.

If French work is nothing but reproduction of foreign prints it means that the design after which these subjects have been engraved has been able to pass from various studios to those of Lyons; but the printing may very well have been done in that city. According to Robert Dumesnil (22) the engraver of Breydenbach was a French goldsmith. That was also Zani's opinion.

(B) THE PARIS SCHOOL

Paris printers have been classified according to the various schools that controlled their output. Claudin counts sixty-one at the end of the fifteenth century (23), while Proctor (24) finds only fifty-two; but those calculations are of no great interest for the history of the illustrated book at that period. Questions of typography are here but accessory, and all the discussions about anonymous works and books issued without date are sterile. It is less important to try to hit on a precise date for a text or to learn the name of the printer than it is to fix the character of the pictures accompanying the text. Without trying certainly, in the absence of dates, to establish the prototype of a picture reproduced often in different works, we shall delve into its style, its technique, in a way to bring together only prints from the same region. From that point of view the subdivision of the Paris school into

a certain number of groups will be preserved and accepted, with the reservation that these groups take sole account of the publishers of books with illustrations.

One of the earliest printers is Jean de Pré, who first took advantage of practical means to make use of engravings for decoration of texts printed on paper. Woodcuts in substituting themselves for the work of illuminators and miniaturists were no longer reproduced by means of the frotton (burnisher) but on the press. From 1488 Jean du Pré applied this method to engraving on metal, as he himself says at the head of his *Book of Hours* of 1488. These plates had to be cut in relief when they were printed typographically.

We have no great amount of information about the life of Jean du Pré. We know his wife called herself Claire Dimanche. Various documents in archives cast light on his studio. In 1487 he bought a house on rue Saint-Jacques (25). In 1488 the *Books of Hours* note his sign as the two swans, the house on Grand rue Saint-Jacques, second on the right coming from the Seine, near the corner of rue Saint Jacques and rue Saint Séverin, facing the sign of the Arbalest at the side of the house. That house had been leased 30 June 1485 to Saint-Séverin (26). In 1482 he is noted at Chartres in the house of canon Pierre Plumé; in 1491 he is working for Trepperel at the sign of Saint Laurence. In 1504 he must have stopped printing, and in 1506 his widow published a *Book of Hours* according to the Roman usage, on 26 May. His output has much importance.

His Paris *Missal*, finished 22 September 1481, is one of the oldest examples from Paris of the introduction of engraving into books. It was ornamented with two large plates which figure anew in the Chalons *Missal* of 27 October 1489 and in the Autun *Missal* of 1490: God the Father in his glory, surrounded with angels, and a Crucifixion with the Virgin and Saint John at the foot of the cross. These cuts are of a realistic type free from any

foreign influence. The same qualities are found again in the Verdun *Missal* of 28 November 1481, decorated with copper plates engraved in relief: one large plate, the Celebration of the Mass, which reappeared in 1508 at Tours at the hands of Latheron; and smaller ones, the Adoration of the Shepherds, Presentation at the Temple, the Celestial Court.

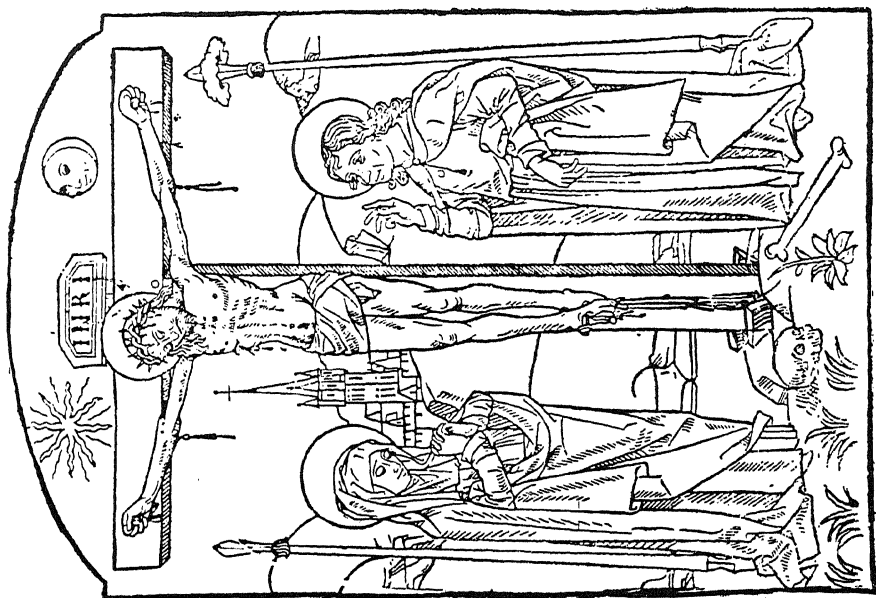
Jean du Pré is also the author of one of the oldest broadsides, the *Grant pardon de Nostredame de Rains*, probably done in 1482.

He gave us, moreover, a charming Boccaccio, *Des cas des nobles hommes et femmes infortunez*, Paris, 26 February 1484 (new style), with well known pictures, such as Debate of Fortune and Poverty, in three scenes: (1) the Unfortunate, victim of riches, Fortune counselling the poor man to be resigned to his fate, Poverty striking Fortune with dismay; (2) the Author questioning Fortune, a hideous monster; (3) a punishment (a prisoner is lashed to a plank covered with spikes), Manlius Capitolinus the Conqueror thrown into the Tiber from the top of the Tarpeian rock.

Jean du Pré had contact also with the printer of Rouen, Jean de Bourgeois, and published the *Roman des chevaliers de la table ronde*, finished 24 November 1488 and 16 September 1488.

The *Somme rurale* of Boutillier was printed by Jean du Pré at Abbeville (1486); one of its cuts, Charles VIII on his seat of justice, is found again in the *Vigilles de la mort du feu roy Charles septiesme* [by Martial d'Auvergne], Paris, 18 May 1493, with pictures of Jean d'Arc at her arrival at Rouen and at her death. We mention also Jean du Pré's *Légende dorée* of Jacopo de Voragine, 7 October 1489, folio, with 24 plates, used anew and later 10 March 1494 (new style).

Among the oldest Paris printers one finds also Jean Bonhomme, son of the printer Pasquier Bonhomme. His *Istoire de la destruction de Troyes la grant, mise par personnages et en rime fran-*



Missal
(Paris: Jean du Pré, 22 September 1481)

çaise par maistre Jacques Millet is dated 12 May 1484. The illustrations are devoted to the meeting of Helen and Priam, to Queen Penthesilea, the death of Ajax and Paris, the lamentations of Andromache, death of Hector, the wooden horse.

It is from the house of Jean Bonhomme that there appeared on 15 October 1486 *Le Livre des ruraulx prouffits du labour des champs*. In the frontispiece the author Pierre de Crescens presents his book to the king. There are curious pictures relating to work on the farm, husbandry, planting the vine, gardening, mowing, orchards and flowers, farm animals, trees and their fruits, traps for animals. A composition divided into four parts gives an idea of grafting, building a house, a court yard, vineyard culture. A third book of Jean Bonhomme with engravings is the *Aggregator practicus de simplicibus* (1486?) containing drawings of plants depicted with a view to their medical value [as significant for medicine and botany as for book illustration].

Pierre Levet used the illustrations of Jean Bonhomme. In Caesar's *Commentaries* translated by Robert Gaguin, which ought to be dated about 1485, we recognize borrowings from the *Istoire de la destruction de Troye de grant* of Jean Bonhomme. He publishes also in the *Prouffits champpestres et ruraulx* of Pierre de Crescens of 10 July 1486 the pictures of Jean Bonhomme, appearing three months later, but the sizes are much reduced. On 23 September 1486 he gives a *Psalter* with one plate, David and Goliath, which is found in Jean du Pré's stock.

It seems that Vèrard had an interest in the Levet printing plant, and that he published books at his own expense. The *Cent nouvelles* of 24 December 1486 are printed *for or by* Vèrard. One of Levet's most original works is *Le grand testament* of François Villon with portraits of Villon, the bishop Thibaut, and the large Margot that served to inspire Guy Marchant.

Marchant is one of the most interesting personalities of the time; he responds to the aspirations of his contemporaries and



Ap dit cy deuant
ou second liure
plusieurs choses
des arbres en ge
neral quant ie
traicte du la
bourage de chascune maniere de

champs Mais a present en ce quit li
ure ie vueil traier de chun arbre
par soy. Et pour ce que aucunes cho
ses sont communes a tous arbres
et les aucunes propres ie vueil
parler au premier en general du
labourage de chun en commun .et

PIERRE DE CRESCENS

Le Livre des ruraux prouffitz du labour der champs
(Paris: Jean Bonhomme, 15 October 1486)

enjoys a real popularity. His two most successful works were the *Danse macabre* and the *Compost et kalendrier des bergiers*.

The *Danse macabre* subject may be held to have had its beginning as a legend that spread over France in the thirteenth century under the title *le Dict des trois morts et des trois vifs*. This theme of the dance of Death was also treated at that time in popular sermons, passed into poetry, represented in the mystery plays with appropriate settings. It has been contended that this subject had first been drawn from German works, then that it had really been of French origin, whether one studies the miniatures of the manuscripts or considers the mural paintings such as those in the cemetery of the Innocents at Paris, dated 1424. It is in this work rather than the *Totentänze*, much later, notably that of Lübeck in 1463, that the *Danse macabre* of Guy Marchand finds its source. The first edition of the book was published 28 September 1485. The colophon runs as follows: Here finishes the *Danse macabre* printed by a man Guy Marchand, living on the Champ Gaillard at Paris, the 28th day of September 1485. This first edition is owned by the public library of Grenoble.

The character of these pictures is very remarkable. The figures do not go uniformly hand in hand as in the Lübeck paintings. They are grouped two by two, in natural attitudes, with very expressive heads. The artist has in each scene shown not only Death but Death in a different attitude, to conduct each person who is to follow him and to resemble him. He knows how to note the gestures, well observed, of the most powerful men as well as the unpretending. Here each of the two skeletons leads by the hand one a pope the other an emperor; there a cardinal and a king; then they follow on according to the laws of royal succession, each led by a corpse that is his posthumous figure, a patriarch and a Lord High Constable, a bishop and a knight, a bishop and a squire, an abbot and a bailiff, an astrologer and a citizen, a canon and a merchant, a Carthusian monk and a sergeant, a monk and

a usurer, a physician and a lover, a lawyer and a minstrel, a priest and a laborer, a gray friar and a child, a cleric and a hermit, and the artist himself.

This small folio of ten leaves and seventeen engravings is one of the most important monuments in the history of illustration in the fifteenth century. By the style of the composition, by the types of person, these pictures show a spirit genial and malicious at the same time, which has permitted Monceaux (27) to attribute the drawings to Pierre le Rouge. Whether the artist came from Touraine, Burgundy, or the Isle de France it is certain he owes nothing to the art of Flanders, Germany, or Italy. Later editions of that *Danse macabre*, notably those of 7 July 1486 ["Juing," Panzer 117], 15 October 1490, 20 January 1491 (new style), and 10 April 1491, enriched with new plates, attest again a truly French type of design.

A similar style appears in the *Danse macabre des femmes* of 2 May 1491, which is a sequel to the *Danse macabre des hommes*, although the drawings seem to be from another hand, not so strong. The skeleton of Death holds the great ladies by the hand as it does the poor women. In groups of two they pass along, each led by a skeleton, a queen and a duchess, a regent and a knight's wife, a prioress and a maiden, a bourgeois and a widow, a merchant and a bailiff's wife, a wife and a "femme mignote" (pampered woman), a chambermaid and a "recommanderesse" (woman who recommends for an employment agency), a shepherdess and a woman on crutches, a hospitable woman and a nurse, a newly wed and a woman with child, a village woman and an aged woman, a "revenderesse" (huckster woman selling second-hand clothes), and a lover, a guard for a woman in child birth and a young girl, a nun and a sorcerer, a bigot and a fool.

Another book of Guy Marchand's that had a great reputation is the *Compost et kalendrier des bergiers*, a treatise on astronomy, hygiene, and morals that ran through many editions after the first

with 30 leaves on 2 May 1491, to those of 18 April 1493 and 18 July 1493, reprinted many times down to as late as 1500.

In the history of French illustration that book marks an important date, for its drawings, sober and full of movement, give an idea of agricultural work, of hygiene, astronomy, the control of the planets over the human body. It is an almanac that appeals to the eyes of the illiterate, shows the farmer the various seasons of the year, with the signs of the zodiac, autumn with the vintage, stocking the tuns, gives advice for sowing seed, how to yoke the ox and the horse for the plough and the harrow. At the beginning a shepherd astrologer seeks to know the meaning of the stars, tries to orient himself with a plumb line. The most striking pictures refer to the punishment of the damned which Lazarus recounts having seen in Hell.

Such are the principal works of Guy Marchant and such was their influence. Apart from his publications there are but few documents relative to his life. His name Guy or Guyot Marchant and his address (on the Gaillard field) are indicated in his sign representing two hands supporting one another, with the two music notes sol and la above, and the words *Fides ficit*. It is his sign in rebus, symbolizing Faith (*sola fides sufficit*, or Faith alone suffices). Sometimes he adds to his device a pair of suspended boots.

On 8 March 1498 (old style) he appeared in court to dispose of vast estates, for he had rented on that date for his life and that of Girard and Jean a portion of the walls comprising the road that separates them from the college of Boncourt.

In 1493 he had established a studio in Jean Petit's house with the Flower of the Golden Lily for a sign. In 1496 he is Petit's partner. Guy de Marchant is one of the great names in the history of illustration.

Another whom it is well to place on the same plane is Pierre le Rouge, who may be classed among the Parisian printers (28)

although he has sometimes been put among those of Bourgogne. He worked at Paris, and is called royal printer in the colophon of the second volume of *Mer des hystoires* of February 1489 (new style), where he is also mentioned as publishing for Vincent Commin at the sign of the Rose, rue Neuve Notre-Dame. He is particularly the founder of printing at Chablis. His chief work was the *Mer des hystoires* in two volumes, July 1488 and February 1489 (new style) that bear witness to real qualities of decoration. The work, translation of the *Rudimentum noviciorum*, is noteworthy for the initials in which the artist has displayed much imagination and happy fantasy. The letter L shows a knight in armor, plume flying in the air, his dirk at the side, seizing the trunk of a tree by his gauntleted hand. Above him a ribbon. The letter is surrounded by animals and insects, rabbits, storks, snails and butterflies. The letter S is formed of dragons. I shows Christ making a gesture of benediction. P shows the artist seated before a desk writing his book.

Among the larger plates some are particularly important, including the Baptism of Christ, Battle of Tolbiac, the Eternal Father hand in hand with Adam and Eve, Passage of the Red Sea, and Consecration of Aaron. The small plates are of a very realistic style, and show a preacher giving a sermon before a brilliant congregation, a builder's work-yard with an excavator, a stone cutter, a workman pushing a wheelbarrow. The episodes from the Life of the Virgin, although well engraved, are less interesting than the subjects taken from daily life.

Pierre le Rouge is credited also with other illustrations, among them the plates in *Cents nouvelles nouvelles*, a collection of tales composed about 1456 and decorated with plates found in many works of Pierre le Rouge. Mention may be made also of the pictures in *Bréviare d'Autun*, 1489; the *Apologues et fables of Aesop* (1490); an Orosius in 1491, a *Roman des sept sages de Rome* (no date, but 1490?) with the plate of the king receiving the seven

sages, the *Dévoutes louanges de la benoite Vierge Marie*, 3 September 1492, a *Psautier français*, with a cut showing Charles VIII on his throne, which had been used in 1486 in the *Somme rurale* of Boutillier (Abbeville, 1486). As Pierre le Rouge worked also for Vérard and as certain engravings in *Art de bien vivre et bien mourir* have been attributed to him, Monceaux (29) has held him the master of the most important illustration work of the fifteenth century. But the list of works Monceaux attributes to him would appear too extensive to justify accepting that theory.

It is possible that there were here other engravers whose names we do not know, who worked for different Paris printers. It is thus that Antoine Caillut and Martineau have turned to the anonymous engravers for *Books of Hours* that recall even those of Jean du Pré, as if they had borrowed his material. Conversely, one of the plates representing the Adoration of the Kings, appeared in 1489, passes to Guy Marchant on 24 September 1494 in a treatise of Pierre d'Ailly and later in 1536 to Texier in Périgueux.

One of the best works from Caillaut is the *Livre des bonnes mœurs*, compiled by Brother Jacque le Grant, of the order of Saint Augustine (7 June 1486, old style). The most curious plates refer to sins, particularly Pride and Luxury.

The list of Paris printers would be incomplete without giving a place to Denis Mellier, of the rue de la Harpe, at the sign of the Green Column; later rue Saint-Jacques, sign of the Three Pigeons. He introduced a curious "Legend of the three dead men and three live men" in the *Heures à l'usage de Bourges* (1492?), and deserves special mention for his illustrations to the *Roman de Paris et Vienne* (Condé museum at Chantilly). In his *Book of Hours* of 13 February 1490 he shows plates engraved on copper in relief, a new process used by Jean du Pré.

With exception of Jean du Pré and perhaps Pierre le Rouge none of the artists who worked for the Paris printers of the fifteenth century could be considered a creator or renewer of the technique

of the book. Just one person seems to have exerted a considerable influence at that time, Antoine Vérard. He was not really an illustrator; he was not a printer either in the modern sense of the word. He was rather an art publisher, to use a modern expression.

At the outset of his career he was a miniaturist, or at least he employed illuminators and decorators to ornament his manuscripts. As engraving developed and as prints tended to replace miniatures in decoration of books, he turned at that moment to the use of various image cutters or picture makers; perhaps he made use of material that had belonged to French or foreign fellow publishers. Just as he employed many printers, so he borrowed from various sources the plates he needed without even adapting or changing them. The diversity of his illustrations comes from the variety of the studios he turned to. Of the two or three hundred works printed by or for him less than thirty can be attributed to him as artist. As to the cuts illustrating his books it is easy to state that every one had been made and published before he used it.

He appears as one of the first printers of *Books of Hours*. One of his works is dated 6 February 1486 (new style), another 21 August 1486; but the most remarkable is that of 7 July 1787, the *Hours* according to the Paris use. This shows the transition from the art of illumination to that of engraving on wood, not yet sufficient unto itself and in need of perfecting itself. There are numerous other *Books of Hours*, one according to the Poitiers use (1488), that of 3 April 1490 (old style), 5 January 1489 (old style), 8 February and 10 April 1489.

The most celebrated *Books of Hours* are the *Grands heures royales*, probably of 1489 (new style). This volume, often reproduced and cited can not be described here, but what does call for noting is the borders. They change as successive reprintings were made. One of their principal modifications consists in the detail that the bands of ornaments finally transform themselves into margins containing people in animated poses.

In the non-clerical field one of the oldest works is Caesar's *Commentaries*, which includes four illustrations skilfully drawn. First comes the translator, Robert Gaguin, offering his book to Charles VIII. Then follow three pictures: the encounter of two troupes of knights, leaders in front, one of them pierced by thrusts and overthrown; an army marching forth from the gates of a city; a battle with warriors fighting alongside their horses, in the midst of the dead. That edition of 1488 is different from the Levet edition, which no one could reproach him with copying entirely, but nevertheless Vérard has been accused of plagiarism. It has been asserted that he plundered Pierre le Caron by substituting his own device for that of his model. Counterfeiting was not a crime, at that time, and Vérard had no scruples about taking the plates of *Compost et kalendrier des bergiers* of Guy Marchant, for example, to use in the *Art de bien vivre et de bien mourir*.

The *Art de bien vivre* has the following plates: the author offering his book, illustrations of Pater Noster, Ave Maria, the Creed, the ten commandments, seven sacraments (baptism, penance, eucharist, confirmation, ordination, marriage, extreme unction). Among these illustrations, finished 15 December 1492, the most noteworthy cuts are the Fall of the Angels, the Apostles, Marriage.

The *Art de bien mourir* is interesting from other points of view. It is the picture of the temptations man is exposed to at the time of death; to triumph over them we have to recognize them. First the faith of the dying man is shaken by the demons who attack his beliefs. Then the list of his offences sweeps all hope away from him. The angel intervenes anew to reassure him, and to the accompaniment of saints invokes divine pity. The demon causes new torments by showing him the fate of his wife and his son after they had crossed the river. The angel, by the image of Jesus on the Cross, teaches him renunciation of earthly pleasures. The demons show him the heirs who wish to steal his money, and excite him against them. The angel consoles him by relating the lives of the glorious

martyrs. To tempt him by a vain glory the demons bear him a crown. The angel gives the signal for Pride to thrust the demons into the jaws of Leviathan. At the end the Christian soul is saved.

In 1488 one of the most curious books of Vêrard is the *Chevalier délibéré*, an allegorical poem by the captain of the guards of Charles the Bold, Olivier de la Marche, printed 8 August 1488 (30). The book is decorated, if one judges it according to the unique copy preserved in the Vienna library, by plates showing the liberated chevalier accompanied by allegorical figures. Sometimes it is with Fresh Memory, sometimes with Desire, Remembrance. Here the hermit is shown with the author, there the author with Fresh Memory. A man in rags is talking with a knight; two warriors charge one another with lances; an amazon is shown with a man carrying a staff. Each of these pictures harks back to melancholy passages inspired in Olivier de la Marche by the death of Charles the Bold. The author undergoes a struggle against Accident and Weakness symbolized by two knights. He attacks Headstrong, is saved by Memories of Youth, the hermit Understanding offers hospitality, shows him a reliquary full of the victories of Accident and Weakness, and offers him a lance. He thus fights with a knight called Age. He is conquered and is given his liberty on condition of not remaining in the land of love, but he does not follow the paths traced for him by Age. He meets Desire again, and would let himself be drawn into the footpath of Abuse toward the Palace of Love did not Memory, recalling Age, prevent his turning aside. He flees Abuse and Decrepitude, and directs himself toward the domain of Good Adventure where the Princess Fresh Memory reigns, and there she welcomes him. Guided by her he takes part in a series of battles where Philip the Good, Charles the Bold, Mary of Burgundy are killed, vanquished by Accident. The author is victor over Accident. Atropos declares the joust ended. Fresh Memory leads the author back home and delivers him into the hands of the hermit Understanding. He repents and prepares for his death.

The style of the cuts ornamenting the work is entirely different from the Chiswick Press edition (30), which is dated about 1486. The woodcuts in the 1488 edition are quite French in character. The book does not bear Vêrard's name, but it has this colophon: Printed at Paris on the Notre Dame bridge at the sign of Saint John the Evangelist. These Paris pictures must have had a great success, for they are found again in Jean Lambert's edition of 1493.

Among the oldest Vêrard books (31) one should mention also the *Fontaine de toutes sciences*, by Sidrack, of 20 February 1486 (old style), which was not printed by Antoine Vêrard but for Anthoine Vêrad (sic), publisher, living in Paris on the Notre Dame bridge, at the sign of John the Baptist or at the Palace at the first column before the chapel where mass is sung. The *Art de chevalrie* of Vegetius is dated 26 June 1488, with the plates of Pierre le Rouge from *Cent nouvelles nouvelles*. A little later Vêrard had Pierre le Rouge (32) print at Paris, 22 December 1490 (old style) *Lucian, Suétone et Salluste en françois*; on 21 August 1491 (old style) he published through Paul Orosius [as translator] the first and second volume, and on 7 December 1492 the *Bataille judaïque* of Josephus. All these works are ornamented with plates.

His two most important books are the *Egyllon de crainte divine* of 28 October 1492, and the *Chroniques de France* of June 1493. At the head of *Egyllon* Vêrard gives a view of a group in a discussion, and he uses that plate anew for the *Arbre des batailles* of 8 June 1493. It is always the same idea, the picture is interchangeable and is part of the circulating medium. The cuts of the *Egyllon de crainte divine* are nothing but a repetition of the well-known punishments of Hell that Guy Marchant took up again in the 1493 edition of *Compost et kalendrier des bergiers*.

Le Petit-Laurens flourished at the same time as Vêrard. The *Traité des pains d'enfer et de purgatoire* of 18 July 1492, followed by *Traité de l'advenement de l'antichrist* and the *Quinze signes*

précédens le jugement dernier have a plate, the Last Judgment, copied exactly by le Petit-Laurens in the *Légende dorée*.

The *Chroniques de France dites de saint Denis*, 9 July, 31 August, and 10 September 1493 have on the other hand plates taken by Vérard from Pierre le Rouge, such as the celebrated engravings of the Baptism of Clovis and the Battle of Tolbiac. Other illustrations show a different design, such as the Fight in the enclosure, coronation of Charles VII, entry of Charles VIII into Paris, the King of France dispensing justice, preparations for the hunt with falcons. Renouvier (33) admires particularly the King, on horseback between two guards on foot, advancing toward a group of people, and another picture where the bishops and nobles bring the sacred ampulla, banners, shield, the sword, the spurs, the crown to the King seated before the altar.

In that same year 1493 were printed other famous Vérard books: 1 March 1493 (old style) the *Bible des poètes, de métamorphozes*; on 10 March 1493 *Lorloge de sapience*; 20 March 1493 the *Paraboles de maître Alain*; on 8 January the *Arbre des batailles*.

The list of other illustrated books from Vérard, at least the principal ones, ought to include the *Lancelot du lac* of Walter Mapes (1494), the *Grant Boece de consolacion* (14 August 1494), the *Nobles malhereux* of Boccaccio (4 November 1494) with cuts in the style of Boccaccio of the *Généalogie des dieux* (9 February 1498, old style). His *Légende dorée* (20 May 1495) is ornamented with cuts that remind one of Jean du Pré. The *Prophésies de Merlin* (1498), the *Pélerinage de l'ame* (27 April 1499), the *Histoire du chevalier Tristan* (also 1499), and his *Bible historiée* (34) in two volumes contain plates in a style by no means new. We may say this also of the *Miroir de la rédemption humaine* (1499) and his *Térence en français*, inspired by the Terence printed at Lyons by Trechsel in 1493 and Grüninger's at Strasbourg in 1496. It is an interesting procession of Paris in costumes, knightly squires, doctors, citizens, merchants.

In that respect the book that furnishes the most noteworthy illustrations of the commercial life of Paris is the *Livre des ordonnances de la prévosté des marchands et eschevinage de la ville de Paris* (January 1500, old style), a volume outstanding because of the twenty-four woodcuts showing the various trades of the City, sergeants, court clerks, lawyers, clerks, merchants, and solicitors.

In the last years of the fifteenth century a work completely different as to subject and execution is the *Chasteau de labour* by Pierre Gringoire, printed by Pigouchet for Simon Vostre. It takes up the battle of Virtue and Vice, a theme of so many medieval compositions, but it brought renewed youth to them by introducing a very delicate and new sentiment. A young man having married, his love passes rapidly from extreme joy to the deepest sadness. Figures symbolic of Necessity, Suffering, Poverty, Want besiege him as he lies near his wife. The Virtues on Horseback turn back the Capital Punishments with their lance. Good Heart, Good Will, Reason join also to fight the vices. The wife is taken to the chateau of Labor, where she is put to work. With Care and Concern he goes into the workshops of various trades, armorers, damasceners, goldsmiths. At the end of the day he seeks repose at home, where he finds a well-set table with bread, soup, wine. The triumph of Virtue over Vice.

Pigouchet, who published this book, was a former workman of Cailleux's. He lived first on rue de la Harpe, then in the college of Dinville at the corner of the present Boulevard Saint Michel and the rue de l'École de Médecine. His books are filled with historical and amusing details of the manners of the end of the middle ages in France. He stands out as one of the most skilful printers of *Books of Hours*, as much by the beauty of his typography as by the quality of his paper or vellum. We have from him a *Livre d'heures à l'usage de Rome* (16 September 1488, and another, 21 November 1488), also another printed for Simon Vostre (Library of the Arsenal); but the design is still naïve, recalling the tradition of the miniaturists.



Loys filz charles nōme le
chaulx à loys le barbe fut
appelle dunt la nouuelle de
la mort son pere a eideruill
le dunt estoit lors. Au plus tost q̄l peut m̄a

de les barons. A ceulz quil peut se recōfeil
laq̄ attrahit a lui par promesses & par bōs
Aux dngs Donna cortez & aux autres d̄il
les & a aucū abbayes q̄ fist a chascun seld
son pouoir selon ce que ilz requeroiēt. Lors

His *Heures à l'usage de Paris* (1 December 1491, in the Mazarin Library) is less remarkable. The plates, this time not cut on wood but engraved on metal in relief, are very fine. On 5 January 1492 (new style) he prints once more *Heures de la Vierge selon l'usage de Rome*. In the *Heures à l'usage de Rouen* (11 March 1493, new style) he makes a noteworthy effort toward archaism. The Angels appearing to the Shepherds, Massacre of the Innocents, Judas's Kiss, Martyrdom of Saint John, Legend of the Three Dead and Three Living Men are treated with much dexterity. The borders representing subjects taken from the Old and the New Testaments in the *Heures à l'usage de Rome*, 1493, are ingeniously treated, rendered with a naïve faith not deprived of gaiety of expression. So too with the Lyons *Heures* of 1495.

Two important works belong to 1498. One is the *Heures à l'usage de Rome* of 22 August 1498. The drawing is less archaic than in the Rouen *Heures*, the burin more supple, at the same time remaining more correct. The book is ornamented with fourteen large plates enclosed with small columns decorated with leaves and gothic arches. Often the details of the borders reproduce the principal subject, as in the Apparition to the Shepherds, Flight into Egypt, Christ on the Cross.

Philippe Pigouchet treats the *Heures à l'usage de Rome* (16 September 1498) in the same spirit. The episodes of the life of Jesus are here presented in a realistic and striking style, particularly the plates of Bathsheba at her Bath, Lazarus and the Leper, the Beggar at the Rich Man's Door, Parable of the Prodigal Son. But this time there are not the facetious borders of the Hours of 22 August 1498 with their views of citizens having a good time and girls climbing trees. Those amusing subjects appear only in the *Heures à l'usage d'Amiens* (1500), where the illustrator has shown such games as blindman's buff and hot cockles, contrasting strongly with the doleful scenes of men and women in the *Danses macabres*.

A printer who had less success than Pigouchet but was very

much appreciated was named Thielman Kerver and lived on Saint Michel bridge at the sign of the Unicorn. His partner was G. Wolff whose signature appeared in the *Heures à l'usage de Rome* of 28 October 1498; this recalls the style of Pigouchet, but is less elegant. It is ornamented with compositions showing the Angels and the Shepherds, the Presentation at the Temple, Descent of the Holy Ghost, a Man flogged by the Devil.

The *Heures de la Vierge à l'usage de Chalon-sur-Saône* (1499?) for Hughes Pageot of Dijon recall the *Heures* done by Simon Vostre (35). We find the same style in the *Heures à l'usage de Rome* of 16 September 1499.

The influence of Jean du Pré was in general the dominant factor in the works produced by most of the provincial printers. In the outlying cities the publishers followed his processes as closely as possible, running off at the same time and in the same way both the printed text and the copper plate engravings. Introduction of that new technique in the *Heures à l'usage de Rome* of 1488 was really revolutionary. He told his own story about his own work in the following passage placed at the beginning of the volumes: This is the table of contents of the histories and pictures of the Bible, the Old Testament as well as the New, contained in the vignettes of these present Hours printed on copper, in each of which are contained two figures of the Old Testament signifying True history of the New.

These subjects were therefore engraved on metal and not cut on wood, and since they were printed typographically like the text there is reason to believe that they were engraved in relief.

It would be interesting to recover the original metal plates used for printing these cuts. Unfortunately most have been lost, and those that survive, which are quite rare, are not so well preserved as the original wood blocks. These copper plates would not show the style of the artist who did the engraving as well as the prints struck off from them would do. We should see that in all the French cities where book illustration played a part it was not the tradition

of Neumeister and Grüninger that was followed, nor that of the masters of the Cologne school working in the dotted print manner, but rather the vivacious Paris school of the fifteenth century.

CONCLUSION

If we compare the paper of the oldest medieval manuscripts, the types used in the early printed books, and the primitive woodcuts or engravings on metal with similar productions of today we are struck by the fact that these inventions attained perfection at the outset, and that consequently later improvement has not been important. These qualities of the master shown by the first artists of the fifteenth century have not been surpassed by the skill of those who have been able to profit after them by the discoveries of science and the speedy mechanical reproductive processes.

It is not by the beauty of form that the modern book has obtained its great success; it is because it, unlike the early printed books, is addressed to the masses. That need of meeting the curiosity of the crowd by the multiplication of many copies has been facilitated by the technical processes of mass appeal. The book has not gained in presentation, but it has been cheapened.

The subjects covered have become completely different from those of the first days of printing. They are no longer confined to religious texts, as in the middle ages; with the Renaissance they expand to include the works of the Greek and Latin writers of antiquity; then they reach history and the sciences. From that moment dates the humanist movement, which understands that the picture and the book are marvellous means of propagation of ideas. When the printers and the publishers are not restricted by labor union regulations or by censorship of their freedom in issuing their books and pamphlets, the expression of thought takes a new aspect. The press will be created, paper, typography, illustration will play an unexpected rôle. The study of the origin of these inventions explains the importance of their development, something inseparable from the history of civilization.

Notes

PART I

THE ORIGINS OF PRINTING

CHAPTER 1

CONTROVERSIES ABOUT THE INVENTION

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20. Champion, Pierre H. J. B. Les plus anciens monuments de la typographie parisienne. Paris, 1904. pl. VII.
21. Schorbach, *op. cit.* p. 256 ff.
22. Schorbach, *op. cit.* p. 302.
23. Die Chroniken der deutschen Städte herausgegeben durch die historische Commission bei der Königlichen Akademie der Wissenschaften. Leipzig, 1882. v. 18, p. 45. (Mainzer Chronik.)
24. Annales Hirsaugenienses. St.-Gall, 1690. v. 2, p. 421. [The text as quoted in the translation is from Gerard Meerman's *Origines Typographicæ*. Hagae Comitum, 1765. v. 2, p. 101—104. Translator's note.]
25. [Note, however, that in the German Livy published at Strasbourg two years later by Johann Grüninger—23 March 1507—Mainz is acclaimed the birthplace of the invention, but all names of printers are carefully excluded in the dedication that otherwise follows the 1505 text in striking fashion: "Solich werck . . ." Translator's note.]
[Schoepflin, *Vindiciæ Typographicæ*, 1760, p. 69 quotes the 1505 text in part also. Translator's note.]
26. Vaucuse archives, Pons collection, no. 4, folio 36 (cited by Requin, *L'imprimerie à Avignon*. Paris, 1890).
27. Register of the notary Jacques de Brioude at Avignon, 1446, folio 35:

- "Pacta et convenciones pro magistro Procopio Valdfoghel de civitate Praguensi aurifabri ex una et Davino de Caderossia judco de Avinione."
28. Manuscripts of the notary Jacques de Brioude at Avignon, folio 54: "Quitacio pro Procopio de Braganciis argentaris diocesis Praguensis et Davino de Caderossia."
 29. Claudin, Anatole. *Histoire de l'imprimerie en France au XV^e et au XVI^e siècle*. Paris, 1900. p. 8.
 30. Mortet, Charles. *Les origines et les débuts de l'imprimerie*. Paris, 1922.
 31. Requin, Pierre Henri, abbé. *La question de l'imprimerie à Avignon en 1444 et 1446*. Marseille, 1902. p. 15, note. (*Revue historique de Provence*. Déc. 1901. 1. année, no. 12, p. 709-728; 2 année, no. 1, p. 1-24.)
 32. Pansier, Pierre. *Histoire du livre et de l'imprimerie à Avignon du XIV^{me} au XVI^{me} siècle*. Avignon, 1922. 3 v.

CHAPTER 2

PRINTING TYPES

1. Quintilian, *Institutiones oratoriae*, book 1, chapter 26: "Non excludo autem, id quod est inventum irritandae ad discendum infantiae gratia cburneas etiam litterarum formas in lusum offerre" (I do not exclude what has been contrived for stimulating children to learn by means of ivory letters given them to play with).
2. Cicero, *De natura deorum*, book 2, chapter 37: "Si innumerabiles unius et viginti formae litterarum vel aureae qualeslibet alio conjiciantur" (If innumerable forms of the 21 letters, made either of gold or anything else you please, were thrown together).
3. Blochet, Edgar. *Les peintures des manuscrits orientaux de la Bibliothèque nationale*. Paris, 1914. p. 318.
4. Courant, Maurice A. L. M. *Supplément à la bibliographie coréenne (jusqu'en 1899)*. Paris, 1901. (no. 3738: *Traits édifiants des patriarches rassemblés par le bonze Păik-oun.*)
5. *Les métiers et corporations de la ville de Paris, 13^e siècle: Le Livre des métiers d'Etienne Boileau*, publié par René de Lespinasse et François Bonnardot. Paris, 1879. p. 79. (*Histoire générale de Paris.*)
6. *Vocabularius ex quo*. In Altailla, Henricus Bechtermuncze, 4 Nov. 1467.
7. Falk, Franz. *Der Stempeldruck vor Gutenberg und die Stempeldrucke*

- in Deutschland. Leipzig, 1900 pp. 73-79. (Beiheft zum Centralblatt für Bibliothekswesen, XXIII.)—also in: Festschrift zum fünf-hundertjährigen Geburtstage von Johann Gutenberg. Mainz, 1900. pp. 59-64.
8. Gusman, Pierre. Jean Gutenberg et quelques techniques de son temps. (Byblis. Paris, 1923. année 2, pp. 52-60.)
 9. Goldschmidt, Ernst Philip. Gothic & Renaissance bookbindings. London, 1928. 2 v.
 10. Blanchet, Adrien, and A. E. Dieudonné. Manuel de numismatique française. Paris, 1912-30. v. 2, p. 21.
 - 10A. Bauschinger, Julius. [Report.] (Vierteljahrsschrift der Astronomischen Gesellschaft. Leipzig, 1902. Thg. 37. p. 82.)
Schwenke, Paul. Die Donat- und Kalender-type: Nachtrag und Uebersicht. Mainz: Gutenberg Gesellschaft, 1903. (Veroeffentlichungen der Gutenberg-Gesellschaft, no. 2.)
 11. Zedler, Gottfried. Die älteste Gutenbergtype. Mainz, 1902. (Gutenberg-Gesellschaft. Veroeffentlichungen. no. 1 (Two fragments of O m. 289 by O m. 223 and O m. 288 by O m. 224.)
 12. Schroeder, Edward. Das Mainzer-Fragment von *Weltgericht*, ein Ausschnitt aus dem deutschen Sibyllenbuche. Mainz, 1908. (Gutenberg-Gesellschaft. Veroeffentlichungen. no. 5, 7.)
 13. Schwenke, Paul. Neue Donatstücke in Gutenbergs Urtype. (Centralblatt für Bibliothekswesen. Leipzig, 1908. Jhg. 25, pp. 70-75.)
 14. Wysz, Arthur Franz Wilhelm. Der *Türkenkalender*, für 1455. Mainz, 1900. pp. 305-321. (Festschrift zum fünf-hundertjährigen Geburtstage von Johann Gutenberg.)
 15. Schwenke, Paul. Die Donat- und Kalender-type. Mainz, 1903. (Gutenberg-Gesellschaft. Veroeffentlichungen. no. 2, pl. 2.)
 16. Zedler, Gottfried. Die älteste Gutenbergtype. Mainz, 1902. (Gutenberg-Gesellschaft. Veroeffentlichungen. no. 1, pl. 5.)
 17. Zedler, Gottfried. Das Mainzer *Catholicon*. Mainz, 1905. (Gutenberg-Gesellschaft. Veroeffentlichungen. no. 4.) (The author attributes the work to Gutenberg, but Schwenke does not agree. Gutenberg-feier, 1900. p. 371.)
 18. Bibliothèque Nationale, Paris. French manuscripts 5524, folio 152 verso, and 153 recto. [The text here given varies from that in August Bernard's *De l'origine et des débuts de l'imprimerie en Europe*. Paris, 1853. v. 2, pp. 273-274. Bernard follows the text in the

library of the Arsenal, Paris, which gives the date as 3 October, not the 4th.—Translator's note.]

19. Fumagalli, Giuseppe. *Lexicon typographicum Italiae*. Florence, 1905.
20. [Here quoted from *Suffragium pro Johanne de Spira*, of Michael Davis. Viennae, 1794. pp. 8-9.—Translator's note.]
21. Brown, Horatio F. *The Venetian printing press*. London, 1891.
22. Claudin, Anatole. *Histoire de l'imprimerie en France*. Paris, 1900-1914. 4 v.
23. Holtrop, Jan Willem. *Monuments typographic des Pays-Bas au XV^e siècle*. La Haye, 1868.
24. Duff, Edward Gordon. *Early English printing; a series of fac-similes of all the types used in England during the XVth century*. London, 1896.

PART II

THE ORIGINS OF ENGRAVING

CHAPTER 1

THE WOODCUT

1. Bartsch, Adam, Ritter von. *Le peintre-graveur*. Vienne, 1803-1821, 21 v.
- Blum, André. *Les origines de la gravure en France, les estampes sur bois et en métal, les incunables xylographiques*. Paris, 1927.
- Bonnardot, Alfred. *Histoire artistique et archéologique de la gravure en France*. Paris, 1849.
- Bouchot, Henri. *Un ancêtre de la gravure sur bois, étude sur un xylographe taillé en Bourgogne vers 1370*. Paris, 1902.
- *Les deux cents incunables xylographiques du Département des estampes. Origines de la gravure sur bois. Les précurseurs . . .* Paris, 1903. 2 v.
- Chatto, William Andrew. *A treatise on wood engraving historical and practical. With upwards of 300 illustrations engraved on wood by John Jackson*. London, 1839.
- Courboin, François. *Histoire illustrée de la gravure en France*. Paris, 1923-28. 4 v.
- *La gravure française des origines à 1900*. Paris, 1923.

- Delaborde, Henri. La gravure en Italie avant Marc-Antoine (1452-1505). Paris [1882].
- Delen, A. J. J. Histoire de la gravure dans les anciens Pays-Bas et dans les provinces belges, des origines jusqu'à la fin du XVIII^e siècle. Paris, 1924.
- Duplessis, Georges. Histoire de la gravure en France. Paris, 1861.
- Histoire de la gravure en Italie, en Espagne, en Allemagne, dans les Pays-Bas, en Angleterre et en France; suivie d'indications pour former une collection d'estampes. Paris, 1880.
- Friedländer, Max J. Der Holzschnitt. Berlin, 1921.
- Gusman, Pierre. La gravure sur bois et d'épargne sur métal du XIV^e au XX^e siècle. Paris, 1916.
- Heineken, Karl Heinrich von. Idée générale d'une collection complète d'estampes. Avec une dissertation sur l'origine de la gravure & sur les premiers livres d'images. Leipsic et Vienne, 1771.
- Neue Nachrichten von Künstlern und Kunstsachen. Dresden und Leipzig, 1786.
- Hind, Arthur Mayger. A short history of engraving & etching, from the 15th century to the year 1914; being the third and fully revised edition of 'A short history of engraving and etching.' London, 1923.
- Hirth, Georg, and R. Muther. Meister Holzschnitte aus vier Jahrhunderten. München, 1889-1890.
- Jansen, Hendrik. Essai sur l'origine de la gravure en bois et en taille-douce, et sur la connaissance des estampes des XV^e et XVI^e siècles; ou il est parlé aussi de l'origine des cartes à jouer et des cartes géographiques; suivi de recherches sur l'origine du papier de coton et de lin; sur la calligraphie . . . Paris, 1808. 2 v.
- Kristeller, Paul. Kupferstich und Holzschnitt in vier Jahrhunderten. Berlin, 1922.
- Lehrs, Max. Geschichte und kritischer Katalog des deutschen, niederländischen und französischen Kupferstichs im XVten Jahrhundert. Wien, 1908-32. 8 v.
- Lemoisne, Paul André. Les xylographies du XIV^e et du XV^e siècle au cabinet des estampes de la Bibliothèque Nationale. Paris, 1927-8. 2 v.
- Lippmann, Friedrich. Der Kupferstich. Berlin, 1893.
- Ottley, William Young. An inquiry into the origin and early history of engraving upon copper and in wood, with an account of engravers and their works, from the invention of chalcography by Maso Fini-

guerra, to the time of Marc' Antonio Raimondi. London, 1816.
2 v.

Passavant, Johann David. Le peintre-graveur. Contenant l'histoire de la gravure sur bois, sur métal et au burin jusque vers la fin du XVI^e siècle. L'histoire du nielle avec complément de la partie descriptive de l'Essai sur les nielles de Duchesne aîné. Et un catalogue supplémentaire aux estampes du XV^e et XVI^e siècle du Peintre-graveur de Adam Bartsch. Leipsic, 1860-4. 6 v.

Renouvier, Jules. Histoire de l'origine et des progrès de la gravure dans les Pays-Bas jusqu'à la fin du XV^e siècle. Bruxelles, 1860. (Académie royale. Mémoires couronnés et autres mémoires. t. 10.)

Rosenthal, Léon. La gravure. Paris, 1909.

Schmidt. Die frühesten und seltensten Druck-Denkmale des Holz und Metallschnittes. Nuremberg, n. d.

Schreiber, Wilhelm Ludwig. Manuel de l'amateur de la gravure sur bois et sur métal au XV^e siècle. Berlin, 1891-1911. 8 v. in 6.

Weigel, Theodor, and A. C. A. Zestermann. Die Anfänge der Drucker-kunst in Bild und Schrift, an deren frühesten Erzeugnissen in der Weigel'schen Sammlung erläutert. Leipzig, 1860. 2 v.

2. Emerich-David, Toussaint Bernard. Discours historique sur la gravure en taille-douce et sur la gravure en bois. Paris, 1808.
3. Pliny, the elder. *Naturalis historia*, liber XXXV, sect. 1, cap. 2. (ed. Ludovicus Janus, Lipsiae: Teubner, 1860, v. 5, p. 68.) *Imaginum amorem flagrasse quondam testes sunt Atticus ille Ciceronis edito de iis volumine et M. Varro benignissimo invento, insertis voluminum suorum fecunditati septingentorum inlustrium aliquo modo imaginibus.* (English translation by Bostock and Riley, London: Bohn, 1857. v. 6, p. 226: That a strong passion for portraits formerly existed is attested both by Atticus, the friend of Cicero, who wrote a work on this subject, and by M. Varro, who conceived the very liberal idea of inserting, by some means or other, in his numerous volumes, the portraits of seven hundred individuals.)
4. Laborde, Léon Emmanuel Simon Joseph, later Marquis de. De ce que les anciens ont connus tous les genres d'impression sèche, y compris celle des caractères mobiles, il ne s'ensuit pas qu'ils aient decouvert l'impression humide et l'imprimerie. (*Revue archéologique*. Paris, 1848. 5. année, 1. partie, pp. 120-125.)
5. Schuchardt, Chr. Revision der Acten über die Frage: Gebührt die Ehre der Erfindung des Papierabdrucks von gravirten Metallplatten den

- Deutschen oder den Italienern. (Archiv für die zeichnenden Künste. Leipzig, 1858. Jhrg. 4, pp. 45-89.)
6. Laborde, Léon. La plus ancienne gravure du Cabinet des estampes de la Bibliothèque royale, est-elle ancienne? (*L'artiste*. Paris, 1839. 2. série, v. 4, pp. 113-121.)
 7. Stein, Sir M. Aurel. Ruins of desert Cathay. London, 1912. v. 2, pl. 191. He describes a roll of block-printed Buddhist text with frontispiece, from wood-engraving, dated 864.
 8. Rive, Jean Joseph, abbé. *Etreennes aux joueurs, ou Éclaircissements historiques et critiques sur l'invention des cartes*. Paris, 1780. (In Leber, C. *Collection des meilleurs dissertations, notices et traités particuliers relatifs à l'histoire de France*. Paris, 1838. t. 10, pp. 362-384.)
 9. Bussi, Feliciano. *Istoria della città di Viterbo*. Roma, 1742. p. 213: "In quest' anno di tanta tribolazione s'introdusse in Viterbo il gioco delle carte, o vogliam dire le carte di giocare, di cui per l'addietro non ve n'era stata in questa città neppur minima notizia, dicendo il Covelluzzo alla pag. 28 tergo: Anno 1379, fu recato in Viterbo el gioco delle carti, che venne de Seracina, & chiamasi tra loro Naib." (In this year of such tribulation was introduced in Viterbo the game of cards, or rather I am in mind to say, the cards for gaming, of which until then there had not been the slightest notice in that city, as Covelluzzo says on page 28, verso: In the year 1379 the game of cards was introduced in Viterbo, which came from the Saracens and by them was called Naib.)
 10. Belgium royal archives register 2364 of the *Chambre des Comptes*, 14 May 1379, Renier Hollander, receveur général of Brabant: given to our lord and master the 14th day of May, 1379, four peters and two florins, worth eight and one-half moutons, to buy a game of cards.
 11. Zainer, D. *Das Guldenspiel*, 1742, v. 5.
 12. British Museum, Latin manuscripts 2419, Egerton collection.
 13. Lille municipal archives, 4 July, 1382, register no. 1, police ordinances, folio 11. 1^{er} reg. aux bans et ordonnances de police, fol. XI, Archives de l'Hôtel de ville de Lille. (Quoted from Henry d'Allemagne, *Les cartes à jouer*, Paris, 1906, v. 1, pp. 15-16.)
 14. The card makers noted at Toulouse in the fifteenth century are: Jehan Du Val, Jehan de Viales, Johannes Vinerus, Jean de Vignères.
 15. Among the card makers at Lyons in the fifteenth century may be noted: Jehan Abraham, Antoine, Jean des Costes and Abraham, Gayon, Etiam, Guillaume Montet, Jacques de Nyvers, Claude Pellet, Jehan

Personne, Jean de Saint Priest, Pierre Noir, Jehan Siliquin, Pierre Ticulier, Claude Vienne.

16. Allemagne, Henry René d'. Les cartes à jouer du XIV^e au XX^e siècle. Paris, 1906. 2 v.
17. Viginti artium manualis liber (about 1460).
18. Cecchetti, Bartolomeo. La stampa tabellare in Venezia nel 1447 e l'esenzione del dazio di libri nel 1433. (Archivio Veneto. Venezia, 1885. v. 29, pp. 87-91.)
19. Forrer, Robert. Die Zeugdrucke der byzantinischen, romanischen, gothischen und späteren Kunstepochen. Strassburg, 1894.
20. Fleury, Edouard Husson. Les manuscrits à miniatures de la Bibliothèque de Laon étudiés au point de vue de leur illustration. Laon, 1863. 2 pt. in 1 v.
21. Paulirinus, Paulus. Viginti artium manualis liber (about 1460).
22. Cennini, Cennino. Il libro dell'arte, o Trattato della Pittura . . . per cura di Gactano e Carlo Milanesi. Firenze: F. Le Monnier, 1859. p. 126 [Il libro dell'arte, edited by Daniel V. Thompson, Jr. New Haven, 1932-3. Text, v. 1, p. 109; translation, v. 2, p. 115. (Il modo di lavorare colla forma dipinti in panno. Block printing on cloth.) Translator's note.]
23. Durrieu, Paul, comte. L'enlumineur et le miniaturiste. Paris, 1910. (Extrait des Comptes rendus des séances de l'Académie des inscriptions et belles-lettres.)
24. Durrieu, Paul, comte. Les origines de la gravure. (Journal des Savants. Paris, 1917. n. s., 15. année, pp. 205-212, 251-264.) [A review of Gusman's "La gravure sur bois et d'épargne sur métal."]
25. Blum, André. Des rapports des miniaturistes français du XV^e siècle avec les premiers artistes graveurs. (Revue de l'Art Chrétien. Paris, 1911. 54. année, t. 61, pp. 357-369.)
26. Weale, James. Documents inédits sur les enlumineurs de Bruges. (Le Beffroi. Bruges, 1872-3. v. 4, p. 238-337.)
27. Dehaisnes, Chrétien, abbé. Documents et extraits divers concernant l'histoire de l'art dans la Flandre, l'Artois et l'Hainaut avant le XV^e siècle. Lille, 1886. t. 2, p. 694, 711. (Mémoires de la Commission historique du département du Nord. Documents inédits. t. 1-3.)
28. Even, Edward van. L'ancienne école de peinture de Louvain. Bruxelles, 1870. p. 101.
29. Enschedé, J. W. Een drukkerij buiten Mechelen voor 1466. (Het Boek. den Haag, 1918. pp. 286-292.)

30. Passavant, J. D. *Le peintre-graveur*. Leipzig, 1860. v. 1, p. 109.
Friedländer, Max J. *Der Holzschnitt*. Berlin, 1921.
31. Hymans, Henri. *L'estampe de 1418 et la validité de sa date*. Bruxelles, 1903. (Académie royale de Belgique. *Bulletins de la classe des lettres et des sciences morales et politiques et de la classe des beaux-arts*. Jan., 1903, pp. 93-139.)
Delen, A. J. *Histoire de la gravure dans les anciens Pays-Bas*. Paris-Bruxelles, 1924.
- 31A. [The Roland reprint of 1775 (Schreiber, 1349) is occasionally mistaken for an original. Translator's note.]
32. Kristeller, P. *Kupferstich und Holzschnitt in vier Jahrhunderten*. Berlin, 1911.
33. Gusman, P. *La gravure sur bois et d'épargne sur métal du XIV^e au XX^e siècle*. Paris, 1916.
34. Julien, Stanislas. *Documents sur l'art d'imprimer à l'aide de planches en bois, de planches en pierre et de types mobiles, inventé en Chine bien longtemps avant que l'Europe en fit usage; extraits des livres chinois*. (Journal Asiatique. Paris, 1847. 4. sér., v. 9, p. 505-534.)
Cited by Edgar Blochet in "Les peintures des manuscrits orientaux de la Bibliothèque nationale." Paris, 1914-1920.
35. Ilg, Albert. *De l'influence de la France sur l'art roman en Autriche*. (L'Art. Paris, 1882. v. 29 (1882, v. 2) pp. 157-160, 239-240, 257-259.)
36. Bouchot, Henri. *Le "Bois Protat"*. (Gazette des Beaux-Arts. Paris, 1902. année 44, 3. période, t. 27, pp. 395-397.)
37. Haberditzl, Franz Martin. *Die Einblattdrucke des XV. Jahrhunderts in der Kupferstichsammlung der Hofbibliothek zu Wien . . . hrsg. von Franz Martin Haberditzl*. Wien: Verlag der Gesellschaft für vervielfältigende Kunst, 1920. 2 v. in 1.
38. Blum, André. *Un nouvel ancêtre de la gravure sur bois*. (Gazette des Beaux-Arts. Paris, 1923. année 65, 5. période, t. 7, pp. 83-90.)
39. Lemoisne, P. A. *Les xylographies du XIV^e et du XV^e siècle au cabinet des estampes de la Bibliothèque nationale*. Paris, 1927-1930.
40. Wolfskron, Adolph von. *Bericht über drei Holzschnitte aus einer Handschrift des XVten Jahrhunderts der St. Jacobs Bibliothek zu Brünn*. (Quellen und Forschungen zur vaterländischen Geschichte, Literatur und Kunst. Wien, 1849, p. 139-162.)
41. Masséna, Victor, prince d'Essling. *Études sur l'art de la gravure sur bois à Venise. Les livres à figures vénétiens de la fin du XV^e siècle et des*

- commencement du XVI^e. Florence, 1907-14. t. 4, partie 2, pp. 31 and 33.)
42. *Zeitschrift für bildende Kunst. Die Kunstliteratur Beilage.* Oktober, 1925. Heft 7, pp. 53-61. Jhrg. 59. Leipzig, 1925.
Apropos of this M. Gusman suggests resemblances between this print and the figures of the Dozen Virtues in the glass of the Strasbourg cathedral, of the end of the fourteenth century.
 43. Glaser, Curt. *Gotische Holzschnitte.* Berlin, 1924. pl. 1.
 44. Lippmann, Friedrich. *Über die Anfänge der Formschneidekunst und des Bilddruckes.* (Repertorium für Kunstwissenschaft. Stuttgart, 1876. Bd. 1, p. 217.)
 45. Cennini, Cennino. *Tratto della Pittura.* [cf. also note 22, Part II, chapter 1.]
 46. Gusman, Pierre. *La gravure sur bois et d'épargne sur métal.* Paris, 1916.
 47. Lieure, Jules Pierre. *L'école française de gravure.* Paris [1931].
 - 47A. [Master of the Mérode Altar is Master of Flémalle. Attempts have been made to identify him with Jacques Daret and Robert Campien (teacher of Rogier van der Weyden). Cf. Max J. Friedländer's "Die Altniederländische Malerei," v. 2. Berlin, 1924—Translator's note.]
 48. Blum, André. *Une prétendue découverte de la gravure au XIV^e siècle: une fraude archéologique.* Paris, 1921.
 49. Schreiber, Wilhelm Ludwig. *Darf der Holzschnitt als Vorläufer der Buchdruckerkunst betrachtet werden?* Leipzig, 1895.
 50. Mortet, Ch. *Les origines et les débuts de l'imprimerie d'après les recherches les plus récentes,* Paris, 1922, p. 23: What we know about the development of engraving on wood gives no ground for belief that up to about 1460 any success had been attained in the engraving of real block books. From the first third of the fifteenth century the duplication of pictures on single sheets with accompanying explanatory text was making obvious progress.
 51. A first group included twenty-four plates with French or Latin text, and some copies even showed movable characters. In the second group these cuts are copies in grosser manner, sometimes even with German text. Then the borders of the plates are broken (3rd group). The figures are printed in black ink instead of brown, the paper is printed on both sides (4th group). The paper shows watermarks, such as the Passover lamb (5th group). Copies with inscriptions and hatchings (6th group). Certain editions with German text signed

Ludwig ze Ulm (7th group). One copy signed Hans Spörer and dated 1473 (8th group). Cuts imitating the Master E. S. (9th group). The text in German is changed to agree with that of the Cardinal Capranica (10th group). The text in German is in manuscript (11th group). The book is printed on both sides (12th group). The costumes and furniture are changed (13th group).

52. Brunet, Manuel du libraire, Paris, 1860, t. 1, p. 506, gives a detailed description of the eleven pictures corresponding to the following text: 1, Fac sicut pagani; 2, Sis firmus in fide; 3, Ecce peccata tua; 4, Victoria mihi nulla, et nequaquam desepere; 5, Quam bene decepi eum; 6, Sum captivatus; 7, Floriare; 8, Sis humilis; 9, Intende thesauro; 10, Non sis avarus; 11, Confusi sumus.

These eleven pictures represent the following subjects: Temptation to infidelity; Confirmation of faith; The sick man in despair; Tranquility in despair; The impatience of the sick man; Exhortation to patience; Temptation by vainglory; Exhortation against vainglory; Temptation by avarice; Exhortation against avarice; The agony.

53. Heineken, Karl Heinrich von. Idée générale d'une collection complète d'estampes. Leipsic et Vienne, 1771.
54. Guichard, Marie. Recherches sur les livres xylographiques. (Bulletin du bibliophile. 1840-1841. 4. série, pp. 734-737. Paris, 1841.)
55. Schreiber, Wilhelm Ludwig. Manuel de l'amateur de la gravure sur bois et sur métal au XV^e siècle. Leipzig, 1902. t. 4, p. 258.
56. Dutuit, Eugène. Manuel de l'amateur d'estampes. Paris, 1884. t. 1, p. 50.
57. Male, E. L'Art religieux de la fin du moyen âge en France, Paris, 1908, pp. 413-414. These eleven engravings represent: 1, The dying man on his bed looking at a kneeling king and queen before a column surmounted by an idol; 2, Consoled by angel, the Virgin, and saints; 3, Possessed by the list of sins presented to him by two demons; 4, Consoled by the angel, Saint Madeleine and Saint Peter, with Saint Paul; 5, Upsetting his table of medicines and kicking his servant; 6, Helped by Saint Stephen, Saint Barbara, Saint Sebastian, and Saint Catherine; 7, Five devils offer him crowns, one of which he accepts; 8, Helped by God the Father, the Son, the Holy Ghost, the Virgin, and Saint Anthony; 9, Reclining in a cave, his wine cask (pierced by a robber); 10, He gazes at Christ on the cross, and is assisted by the three Marys; 11, The angels carry away his soul in shape of a child, and the devils bellow.
58. Lehrs, Max. Der Künstler der *Ars Moriendi* und die wahre erste Aus-

gabe derselben. (Jahrbuch der königlichen preussischen Kunstsammlungen. Berlin, 1890. Bd. 11, pp. 161-168.)

59. Cust, Sir Lionel. The Master E. S., and the "Ars Moriendi." Oxford, 1898.
60. Schmarsow, August. Ist der Bildercyclus "Ars Moriendi" deutschen oder niederländischen Ursprungs? (Repertorium für Kunstwissenschaft. Berlin, 1900. Bd. 23, pp. 123-142.)
61. Delen, A. J. J. Histoire de la gravure dans les anciens Pays-Bas. Paris, 1924. t. 1, pp. 73-76.

We have collected various documents which will be published in good time and will permit comparison between the tapestries of Angers, the Cambrai manuscript, other similar ones, and the various editions of the blockbook Apocalypse, particularly those we consider as the first. As this question is obscure and the classifications differ, it is necessary to refer to the following principal works:

Delisle, Leopold, and P. Meyer. L'Apocalypse en français au XIII^e siècle. Paris, 1901.

Didot, Ambroise-Firmin. Les Apocalypses figurées, manuscrits et xylographiques. Paris, 1870.

Farcy, Louis de. Monographie de la cathédrale d'Angers. Le mobilier. Paris, 1901. pp. 77-156.

Giry, La tapisserie de l'Apocalypse d'Angers, Paris, 1876.

Guiffrey, Jules. Les tapisseries du XII^e à la fin du XVI^e siècle. Paris [1911].

Müntz, Eugène. Histoire de la tapisserie. Paris, 1878-1884.

Schreiber distinguishes six editions of the Apocalypse: 48 pages, with unnumbered pages; another with numbered pages; one of 50 pages; one with 48 illuminated plates; one with pages larger than the preceding ones; a last with numbered pages and different text.

62. [Delisle, Léopold, and P. Meyer, *L'Apocalypse en Français au XIII^e siècle* (Bibliothèque nationale, fr. 403). Introduction et texte. Paris: Firmin Didot et Cie., 1901. pp. ii-iii.]
63. Bouchot, Henri F. X. M. Un ancêtre de la gravure sur bois. Paris, 1902. pp. 11, 87, 100.
64. Renouvier, *op. cit.*, p. 64.
65. Dutuit, *op. cit.*, pl. XV.
66. Blum, André. Un manuscrit inédit du XIII^e siècle de la "Bible des Pauvres." (Fondation Eugène Piot. Monuments et Mémoires pub-

- liés par l'Académie des Inscriptions et Belles-Lettres. Paris, 1926. t. 28, pp. 95-111.)
67. Schreiber, Wilhelm Ludwig. Die Entstehung und Entwicklung der *Biblia pauperum*. Strassburg [1903]. He distinguishes (on page 26) four editions of the *Biblia Pauperum*: a Dutch edition in 40 leaves, of which the engravings have been reproduced in Epistelen ende Evangelien, Peter van Os, at Zwolle, 1487; a xylo-chirographic edition in 34 leaves (University of Heidelberg library): two with text in German, one of 1470 by Walther and Hurning, the other of 1471 by Spörer; finally one with Latin text, 50 leaves.
 68. Kristeller, Paul. Exercitium super Pater Noster, nach der ältesten Ausgabe der Bibliothèque nationale. (Graphische Gesellschaft. Veröffentlichung 6, Berlin, 1908.)
 69. Bouchot, Henri. Un ancêtre de la gravure sur bois. Paris, 1902. p. 62. According to Schreiber there are three editions: one xylo-chirographic, another with Flemish text, and a last with Latin text above and Latin verses below.
 70. Bastelaer, René van. Conférences sur l'histoire du livre. Bruxelles, 1923.
 71. Vincent, Auguste. Les livres xylographiques du XV^e siècle: le Spirituale Pomerium. (Revue belge de philologie et d'histoire. Bruxelles, 1923. t. 2, pp. 349-359.)
 72. Doudelet, Charles. Le *Speculum humanae salvationis* de Florence. Gand, 1903. The author here shows the connection between certain engravings in the *Speculum* and the pictures by Thierry Bouts. He sought the draftsman in the circle of Bouts, but that hypothesis has been rejected by M. J. Schretlen in his article in *Het Boek*, 1923, p. 275, entitled *De Uitvinding der boekdrukkunst en de Coster-overlevering*.
 73. Perdrizet, Paul. Étude sur le *Speculum humanae salvationis*. Paris, 1908. p. 122.

CHAPTER 2

ENGRAVING ON METAL—INTAGLIO ENGRAVING

1. Théophile. Diversarum artium schedula, tr. Escalopier. Paris, 1843. chapters 11 and 12.
Essai sur divers arts, en trois livres, par Théophile pretre et moine . . . avec traduction et notes, par M. l'abbé J. J. Bourassé. Paris, 1852. v. 2, col. 867-8. (Nouvelle encyclopédie theologique . . . par M. l'abbé Migne.)

Technik des Kunsthandwerks im zehnten Jahrhundert, des Theophilus Presbyter *Diversarum Artium Schedula* in Auswahl neu herausgegeben, übersetzt und erläutert von Dr.-Ing. Wilhelm Theobald. Berlin: VDI-Verlag, 1933. pp. 68, 69.

2. Passavant, Johann David. *Le Peintre-graveur*. Leipsic, 1860-4. t. 1, p. 352.
3. Weigel, Theodor Oswald, and A. C. A. Zestermann. *Die Anfänge der Druckerkunst in Bild und Schrift*. Leipzig, 1866, 2 v.
4. Gusman, Pierre. *La gravure sur bois et d'épargne sur métal du XIV^e siècle*. Paris, 1916.
5. Blum, André. *Les niellours du quattrocento et Maso Finiguerra*. (*Gazette des Beaux-Arts*. Paris, 1933. t. 75, pp. 214-230.)
6. Lehrs, Max. *Der Meister der Spielkarten und seine Schule*. (*Jahrbuch der königlichen preussischen Kunstsammlungen*. Berlin, 1897. Bd. 8, p. 57.)
7. Renouvier, Jules. *Histoire de l'origine et des progrès de la gravure dans les Pays-Bas, jusqu'à la fin du XV^e siècle*. (*Mémoires couronnés et autres mémoires publiés par l'Académie royale des sciences, des lettres et des beaux-arts de Belgique*. Collection in 8vo, t. 10. Bruxelles, 1860. p. 30.)
8. Brehmer, W. *Zur Geschichte des Vereins für Lübeckische Geschichte und Altertumskunde*. Lübeck, 1889. 3. Heft (1887, 1888.) pp. 208-210.
9. Blum, André. *Les débuts de la gravure sur métal*. (*Gazette des Beaux-Arts*. Paris, 1931. v. 73. 6. période, v. 6, pp. 65-77.)
10. Cited by Mrs. Merrifield in her *Original Treatises dating from the XIIth to XVIIIth centuries on the arts of painting*. London, 1849. v. 1, pp. 1-321. Cf. *Archiv für die zeichnenden Künste*. Leipzig, 1859. Jhrg. 5, p. 125; and *Zeitschrift für bildende Kunst*. Leipzig, 1897-8, neue Folge, Jhrg. 9, pp. 30-35.
11. Molsdorf, Wilhelm. *Beiträge zur Geschichte und Technik des ältesten Bilddrucks*. Strassburg, 1921. (*Studien zur deutschen Kunstgeschichte*. Heft 216.)
12. Laborde, Léon de. *La plus ancienne gravure du Cabinet des Estampes de la Bibliothèque nationale, est-elle ancienne?* (*L'Artiste*. Paris, 1839. sér. 2, t. 4, pp. 113-121.)
13. Delaborde, Henri. *Notice sur deux estampes de 1406 et sur les commencements de la gravure en criblé*. (*Gazette des Beaux-Arts*. Paris, 1869. 11. année. 2. période. t. 1, pp. 238-253.)

14. In support of the hypothesis of a German provenance note that the "Carrying the Cross" is found in a series of twenty-eight engravings done by Pfister at Bamberg about 1460, to illustrate the "Seven Joys of Mary" and the "Passion of Christ."
15. Duchesne, Jean. *Essai sur les nielles*. Paris, 1826. p. 10.
16. Passavant, Johann David. *Le peintre-graveur*. Leipzig, 1860. t. 1, p. 88. The Jagellon library at Cracow has an original impression of this Virgin, engraved in reverse.
17. Gusman, Pierre. *Un incunable et son histoire*. (*Gazette des Beaux-Arts*. Paris, 1912. 54. année, 1. semestre, pp. 271-278.)
18. For relief printing it must be admitted that the cooling of the tin or lead in the molds is enough to give a positive proof. The intaglio matrices would thus be able to give birth to plates satisfactory for impression. Certain impressions in paste give the counter type in intaglio to a plate in relief.
19. Willshire, W. H. *A descriptive catalogue of early prints in the British Museum: German and Flemish schools*. London, 1879-83. 2 v.
v. 1, pp. 90 and 112, refers to two copies of French dotted prints owned by the British Museum, a Saint Martin, the original owned by Baron E. de Rothschild; and an Archangel Michael, replica of a proof owned by the Library of the Arsenal, Paris.
Dodgson, Campbell. *Catalogue of early German and Flemish woodcuts preserved in the Department of Prints and Drawings in the British Museum*. London, 1903-1911. 2 v.
20. Courboin, François. *Quelques enrichissements récents du Cabinet des Estampes*. (*Revue de l'art ancien et moderne*. Paris, 1912. année 16, t. 31, pp. 19-28.)
21. Lemoisne, Paul André. *Catalogue des estampes de l'exposition du moyen âge de la Bibliothèque nationale de 1926*. Refers also to the engraving of Saint Gideon and Saint Ursula as done in French Flanders about 1460 (Bouchot, 142).
22. We have never found a print engraved on stone. But the use of engraved stones is established by a passage in the inventory of the estate of the sister of Jean de Heinsberg, bishop of Liege, a nun in a convent near Malines, the inventory made in 1465. Among her effects was "unum instrumentum ad imprimendas scripturas et ymagines" and "novem printelignee ad imprimendas cum quatuordecim aliis lapideis printis" (an instrument for printing writings and pictures, and nine

- plates for printing pictures with fourteen other printed stones).
J. H. Hessels, Haarlem the birth place of printing. London, 1887.
23. Piot, Eugène. Cabinet de l'amateur, 1842. (The copper, two lines thick, is cut like wood in *champlevé*, and by means of four pins clinched to the two sides is fixed to a wood block which has an inscription in three lines engraved on it.)

CHAPTER 3

THE ILLUSTRATED BOOK

1. Renouvier, Jules. Les origines de la gravure en France. (Gazette des Beaux-Arts. Paris, 1859. t. 2, pp. 1-22.)
2. Blum, André. Des rapports des miniaturistes français du XV^e siècle avec les premiers artistes graveurs. (Revue de l'Art chrétien. Paris. 1911. 54 année, t. 61, pp. 357-369.)
3. Martin, Henri. (Bulletin de la Société nationale des Antiquaires de France. Paris, 1904. p. 147.)
4. Laborde, Comte A. de. Les manuscrits à peinture de la *Cité de Dieu* de Saint Augustin. Paris; Société des bibliophiles français, Edouard Rahir, libraire, 1909. t. 1.
5. Rondot, Natalis. Graveurs sur bois et les imprimeurs à Lyon au XV^e siècle, Paris, 1896.
6. Duff, Edward Gordon. The printers, stationers and bookbinders of Westminster and London from 1476 to 1535. Cambridge, 1906.
7. Masséna, Victor, Prince d'Essling. Les livres à figures vénitiens de la fin du XV^e siècle et du commencement du XVI^e. Paris, 1907. t. 1, p. 21.
8. Lacombe, Paul. Livres d'heures imprimés aux XV^e et XVI^e siècles conservés dans les bibliothèques publiques de Paris. Paris, 1907. no. 7.
9. Martin, André. Sur une gravure d'Antoine Vêrard. (Revue des livres anciens. Paris, 1913. pp. 15-20.)
10. Blum, André. Le livre à gravures du XV^e siècle. Paris, 1924. pp. 21-42.
11. Schreiber, Wilhelm Ludwig. Manuel de l'amateur de la gravure sur bois et sur métal au XV^e siècle. Leipzig, 1911. v. 5 and 6.
Schram, Albert. Die Drucke von Albrecht Pfister in Bamberg. Leipzig, 1922. (Der Bilderschmuck der Frühdrucke. no. 1.)
12. Muther, Richard. Die Deutsche Bücherillustration der Gothik und Frührenaissance. München, 1884.

13. Martin, André. Le livre illustré en France au XV^e siècle. Paris, 1931.
14. See Natalis Rondot. Les graveurs sur bois et les imprimeurs à Lyon au XV^e siècle. Paris, 1896. pp. 128-133.
- 14A. [The reference here is to the copy described as 419 in "Catalogue des incunables des bibliothèques publiques de Lyon, par M. Pellechet," (Lyon, 1893), bound in 18th century calf, acquired in 1842.
Mlle. Pellechet's note cites the reference to what Brunet ("Manuel du libraire," 1863, v. 5, page 480, under *Speculum*, counts as the first edition, Lyon: Huss, 26 August 1478, but with no copy located.
She notes also that type faces of the 1478 issue differ from those of 1479. The 1479 cuts are the same as in *Spiegel menschlicher Behältnisse*, Basel, 1476.—Translator's note.]
15. Dalbanne, Claude. Les subtiles fables d'Esopé. Lyon, 1926.
16. Guillaume le Roy came from Liège (Liège archives, series EE, IV, inventaire Chappe, 198 f. 129, folio 1, verso). After the destruction of Liège in 1468 he took refuge in Cologne, thence went to Basel, then to Bersmunster in Argovia, then to Lyons where he worked with Barthelémy Buyer.
17. Lyons archives, CC, 212, folio 100, verso, and CC, 7, folio 88.
18. Lyons archives, roll of the visit of arms, 1492.
19. Lyons archives, EE, folio, XXVII, recto, The register of Nommées, from the census of 1493, mentions Maillet as printer. He married Ennemonde Gueynard, and lived on rue Mercière near rue Bonnevaux. He died in 1514.
20. Passavant, Johann David. Le peintre-graveur. Leipzig, 1860. pp. 63-64.
21. Baer, Leo. Die illustrierten Historienbücher des fünfzehnten Jahrhunderts. Strassburg, 1903.
22. Dumesnil, Robert. Le peintre-graveur français. Paris, 1835-71. v. 6, pp. 3-4.
23. Claudin, Anatole. Histoire de l'imprimerie. Paris, 1900-14. 4 v.
24. Proctor, R. G. C. An index to the early printed books in the British Museum. London, 1898-1903. 3 v.
25. Archives nationales, S, 904, fol. 78.
26. Archives nationales, S, 3501.
27. Monceaux, Henri. Les Le Rouge de Chablis: calligraphes et miniaturistes, graveurs et imprimeurs. Études sur les débuts de l'illustration du livre au XV^e siècle. Paris, 1896. t. 1, p. 139.
28. Archives nationales, Q¹ 1099¹⁰⁸, folio LXXII, verso.
29. Monceaux, Henri. Les Le Rouge de Chablis. Paris, 1896. t. 1, p. 139. He

inclines to credit to Pierre Le Rouge the printing and engraving of works published with Vêrard's mark from 1485 to 1493 without name of printer. The Pierre Le Rouge studio would seem to have been formed in May, 1493.

30. For the *Chevalier délibéré* see Illustrated Monographs no. 5 of the Bibliographical Society of London, "The illustrations of the edition of Schiedam reproduced, with a preface by F. Lippmann, and a reprint of the text," London, 1898.

Also Recueil de pièces historiques imprimées sous le regne de Louis XI, by Emile Picot and Henri Stein, Paris, 1923, which describes and reproduces the edition of 1488.

31. For the bibliography of Vêrard see Macfarlane, *Vêrard*, published at London in 1900 by the Bibliographical Society.
32. According to Renouvier most of the figures go back to Pierre le Rouge. He identifies them by their sturdy composition and by the strokes of short hatchings.
33. Renouvier, Jules. Des gravures en bois dans les livres d'Antoine Vêrard. Paris, 1859.
34. Comestcor, Petrus, La Bible historiée . . . translatez de Latin en François . . . par Guyars de Moulins. Paris: Vêrard, sur le pont de Notre-Dame. As the fall of the bridge came in 1499 this edition can not be later than the end of the fifteenth century. [Hain 5539 puts it as about 1487.]
35. Renouvier, Jules. Des gravures sur bois dans les livres de Simon Vostre. Paris, 1862.

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